The Orchadian

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Dendrobium bigibbum var. *superbum*
Edward River, Cape York Peninsula.
Photo Peter Adams

The Orchadian

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Dedicated to the study and conservation of Australasian native orchids

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17th DENDROBIUM SPECIOSUM SPECTACULAR & AUSTRALASIAN ORCHID SPECIES and HYBRID SHOW 2018

Kempsey, NSW

(Ted & Winsome Walmsley and the ANOS Mid North Coast Group)

Dates for this event which provides a first class opportunity to see some of the best speciosums in flower as well as a wide range of other Australasian orchids and hybrids, are given below. Note the dates and plan to be there. All are welcome to exhibit and judging will be by an all ANOS panel. Monetary prizes and trophies will be awarded in a range of classes including species, hybrids and terrestrials.

Interstate entries are encouraged with a prize for the most travelled orchid.

***Dates*: Sat 1st Sept 10am to 4pm [Closed for judging b/w 11am and 12 noon this day]**

Sun 2nd Sept 9am to 2pm

***Location*:** Kempsey Dirt Bike Track, Alverton St., Greenhill, via Kempsey.

***Details*:** Refer to the website: www.kempseyspeciosumspectacular.com.au

OR contact Ted Walmsley on (02) 6562-7150 or John Zietsch on (02) 6554-9733.

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Editorial

In 1987 Walter Upton and Murray Corrigan (President) recruited Dr. Noel Grundon as Editor of *The Orchadian*, supported by eight invited Editorial Associates they engaged from various regions of Australia, New Guinea and New Zealand. Wal wrote to these volunteers requesting articles and stating 'we must keep a balance between horticultural, general interest and botanical content... to cater for all members'. That is still the goal, with the content dependent on contributions received. If you consider that certain areas are under-represented then write on them or organise someone else to contribute.

If Wal Upton meant 'scientific' when writing of 'botanical content', then the past two years has seen only a small amount of science, in only a few articles. In this issue, on request, I have summarized the published new classification of the *Dendrobium bigibbum* complex, which has much relevance to the international horticultural world, hybridists and general growers. *Dendrobium bigibbum* is involved in more than half of the over 13,000 registered *Dendrobium* hybrids. The new classification has been accepted by the World Checklist of Selected Plant Families and the Royal Horticultural Society Orchid Hybrid Registration registrar.

D. bigibbum var. *schroederianum* (illustrated as *D. phalaenopsis* Fitzg.) in Cogniaux and Goosens, *Dictionnaire Iconographique des Orchidées*, *Dendrobium*, vol. 5 t.4 (1896-1907).

A little effort may be required to follow the results and evidence for the changes, similar to the article on the *Dendrobium speciosum* complex (*The Orchadian* 15:5 Sept. 2006). Many of the *Dendrobium bigibbum* plants were collected in north Queensland and the Torres Strait in the late 19th C and early 20th C, and later described and illustrated in English gardening magazines when they flowered. They were new to the horticultural world, and with more exploration it was inevitable that the understanding and classification of them would change over a long period.

Callyn Farrell modified his cultural techniques in Newcastle and reports an improvement in flowering results for *D. bigibbum* and its hybrids, which can be difficult to grow well in more southerly locations.

Trevor Porteous is not discouraged by species that flower for a brief period, and has ten species that flowered recently. For him, one day is enough!

Kevin McFarlane succeeded with *Dendrobium* intersectional hybrids between sects. *Dendrocoryne* and *Spatulata* e.g. *D.* Australian Beauty (made in 1973) and *D.* Our Native (registered 1977). Roslyn Capell reviews these warmer growing plants, with some recent flowering examples, including *D.* Golden King.

David Butler records his highlights and disappointments with some colourful intergeneric Aeridinae hybrids.

Correction The Orchadian 19:2 p. 57. The unflowered plants in Figure 6 are *Chiloglottis reflexa*, with two leaves, not *Pyrorchis nigricans*, which has a single leaf. Peter Adams

I hope that you have all put into your diary the 9th ANOS Show and Conference at Strathpine Community Centre, Queensland, Wednesday 21st to Sunday 25th August 2019. A planning subcommittee consisting of representatives of ANOS Council Inc. and our host society ANOS KABI Inc. have already had several meetings, and the goal is to provide members with an informative and interactive experience to inspire the love of knowledge and growing of Australasian orchids. We will keep groups and members informed by regular newsletters.

I am currently the custodian of ANOS Council minutes from the organisation's first beginnings in 1963 up to the early period of this century. The documents make informative and fascinating reading. In that early period many ideas from an enthusiastic membership were proposed, and some trialled, before the structure evolved that we have now as ANOS Inc. There was a steady stream of members keen to be involved in the new society. Many early writers who had been providing general gardening magazines with articles on Australian orchids turned their attention to writing for the new publication, *The Orchadian*, which was initially published much more frequently, but gradually reduced to quarterly due to cost and expansion of content.

The 1st Australasian Native Orchid Conference and Show, which I had the privilege of attending, was held at the University of Wollongong from September 28-30, 1990. The seminars included topics on research, general orchid surveys, papers on hybridisation and culture, and conservation by flasking of species. On the first day there were very successful interactive workshops discussing cultural methods and breeding, involving members who later became well known for some great steps forward in *Dendrobium* and *Sarcochilus* hybrids. There was no published record of these discussions, and I hope that the workshops planned for the conference next year can be written up so we can later look back and reflect on this time point.

The opening address by the President of the time, W.T. Upton, is recorded in the proceedings. His words remain relevant to our upcoming conference - "The important factor of a happening of this nature is to meet people who share like interest, to meet old friends and make new ones. All to the benefit of the orchids we love....Unity must be our watchword.....Good fellowship and the furtherance of knowledge and conservation is the aim of this conference. Enjoy it and take with you the exuberance it has conceived".

Sheryl Lawson

A.N.O.S. (Inc.)

Notice of Annual General Meeting

The AGM will be held on Saturday the 1st September 2018
To commence at 3.00 pm.
Venue: Kempsey Heights Bowling Club.

ALL positions on Council will be declared vacant and Nomination Forms will be made available on the ANOS website at www.anos.org.au

Only fully financial Members can be nominated, and vote.

Reference to Item 18 of the A.N.O.S. (Inc.) Constitution and Item 19 of the Constitution are drawn to your attention.

Nominations will be accepted up to 7 days prior to the A.G.M.

Signed: R.A. Winch—Secretary

The *Dendrobium bigibbum* Lindl. Complex – a New Classification and Implications for Hybrid Registration

Text and Photographs by Peter B. Adams
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Summary

Dendrobium bigibbum has a confused history over 160 years, with many taxa described as separate species, subspecies, varieties and forms. The first detailed population studies over the distribution range were not published until 2015–6. The evidence supports a single species, *D. bigibbum*, with four varieties – *D. bigibbum* var. *bigibbum*, var. *superbum* Rchb.f., var. *compactum* (C.T. White) Peter B. Adams and var. *schroederianum* (Hort. ex W. Watson) Peter B. Adams. *Dendrobium phalaenopsis* has been reduced to synonymy with *D. bigibbum* var. *superbum*, which was described earlier, with a more satisfactory type specimen. No characters previously used to distinguish taxa are reliable. The *D. bigibbum* complex is involved in about half of the more than 13,000 registered hybrids. It is not possible to determine the provenance of many parents in nearly 100 years of hybridisation, and in most line breeding. Implications of the new classification, accepted by the Royal Horticultural Society (RHS) and the World Checklist of Selected Plant Families (WCSPF), are discussed.

Introduction

Dendrobium bigibbum is one of the finest Australian orchids, and one of the earliest in cultivation, from around 1824. It is a key parent of some of the most important orchid hybrids in the international horticultural industry and is represented in around half of the 13,000 registered *Dendrobium* hybrids. It was first described by John Lindley in 1852, who recognised it as "a very remarkable plant". It had previously been collected from north-eastern Australia and Torres Strait on multiple occasions and grown in England for about three decades. It is a striking, large-flowered species known for rounded, long lasting, mainly rich mauve flowers, and has a dominant influence in hybrids. It is one of the two species in *Dendrobium* sect. *Phalaenanthe*, the other being *D. affine* (Decne.) Steud. from northern Australia, Indonesia, west New Guinea and Timor.

In more than 160 years, many taxa have been described as separate species, subspecies, varieties and forms. Descriptions of more than 40 taxa represent limited observation, often using a few plants of uncertain origin or provenance. The first account of the variation over the major regions of the distribution range was published recently, resulting in an evidence-based classification (Adams 2015, Adams and Lawson 2016).

The history, type specimens and distribution of plants in the *D. bigibbum* complex are reviewed, with presentation of the major findings of the population studies, including morphology and molecular (DNA) results. The new classification is outlined. The characters previously used to identify taxa are examined, and the implications of the new classification on hybrid registration are outlined.

History

In the late 19th century, ships returned to the northern hemisphere from the northern Australian coastline and Torres Strait with many collected plants, later described as varieties when they flowered in English collections, often as single plants with different colours. They were often of uncertain origin, sometimes with deliberately misleading labels to protect commercial interests. Some of the colour forms described as separate taxa were later identified as *D. bigibbum* var. *bigibbum*. The type specimens are often fragmentary, some with accompanying low-quality drawings in horticultural magazines, and made from plants in collections with incorrect labels. *Dendrobium bigibbum* was also confused with the natural hybrid *D.* × *superbiens* Rchb.f. (*D. bigibbum* x *D. discolor*) and with other plants.

Dendrobium phalaenopsis Fitzg. was described by Fitzgerald in 1880 (*Gard. Chronicle* (ser. 2) 14:38), based on an Australian plant of uncertain origin. In 1882 the Sanders nursery collector W. Micholitz and H.O. Forbes collected specimens from Timor Laut (Tanimbar Islands). These plants were named *D. phalaenopsis* Fitz. var. *schroederianum* Hort. ex W. Watson in 1891 (*Gard. and Forest* 4:521), and their provenance was confused with those from northern Australia (e.g. *D. phalaenopsis*). Forbes' description in 1885 of "gathering a most lovely orchid, *D. phalaenopsis*, previously known from Queensland in Australia", and an illustration under the name *D. phalaenopsis* in *Bot. Mag.* 41: t. 6817 (1885), added to the uncertainty. Plants from Timor Laut and Australia labelled as *D. phalaenopsis* have been used to make increasing

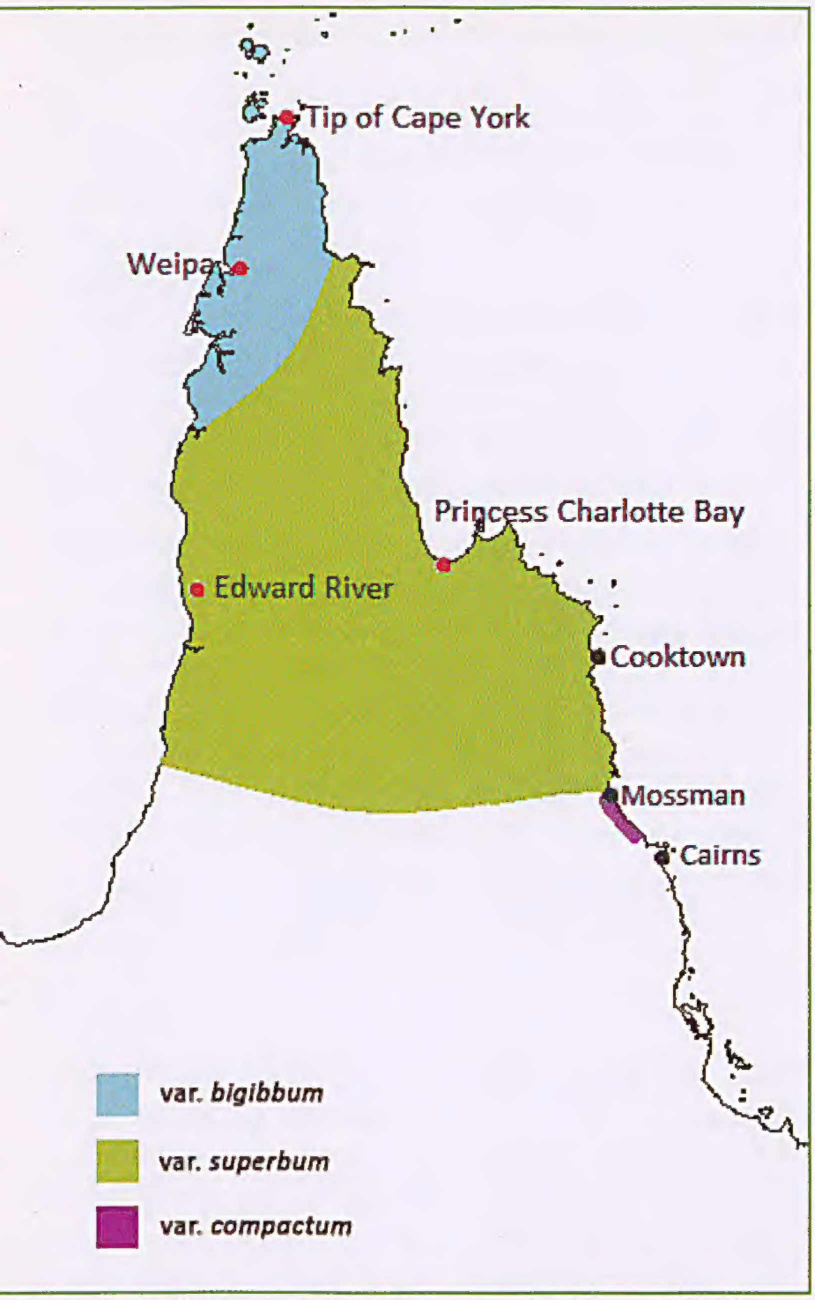


Figure 1a Distribution of the *Dendrobium bigibbum* complex in Australia (from Adams 2015).

numbers of hybrids since the early part of the 20th century. Many early registered hybrids were made with plants of uncertain provenance.

Plant characters (Table 1) have been used to form taxonomic subgroups at species, subspecies and varietal level (Blake 1964; Dockrill 1969, 1992; Clemesha 1978; Upton 1989; Lavarack and Gray 1985, 1992; Jones 1988; Clements 1989; Clements and Jones 2002). Fitzgerald used species rank for the second described taxon in this group, *D. phalaenopsis*, which became known as 'the Kew variety' to distinguish it from *D. phalaenopsis* var. *schroederianum* from Timor Laut. The name *Dendrobium phalaenopsis* was used for some time before being published twice in the same month in *Gardeners Chronicle* in 1880. Trevor Hunt (1952) regarded *D. phalaenopsis* as "merely one of the varieties of *D. bigibbum*" and the varieties as "of horticultural interest only".

St. Cloud (1956) noted variation in populations of *D. bigibbum* on Cape York, attributing it to habitat differences and annual variation in floral features, and suggested that there was a single species with variable forms. Blake (1964, 1966) preferred a single species in attempting to clarify the confusion regarding the term 'Cooktown orchid', referring to it as "*D. bigibbum* Superbum" (Rchb.f. 1878 *Gard. Chron*. 10:748). This term was used in a variable way to refer to different taxa. *Dendrobium phalaenopsis,* used widely in hybrid registration, was until recently an accepted name by the WCSPF rather than *D. bigibbum* var. *superbum* Rchb.f., before revision following the major studies on the complex. Details concerning

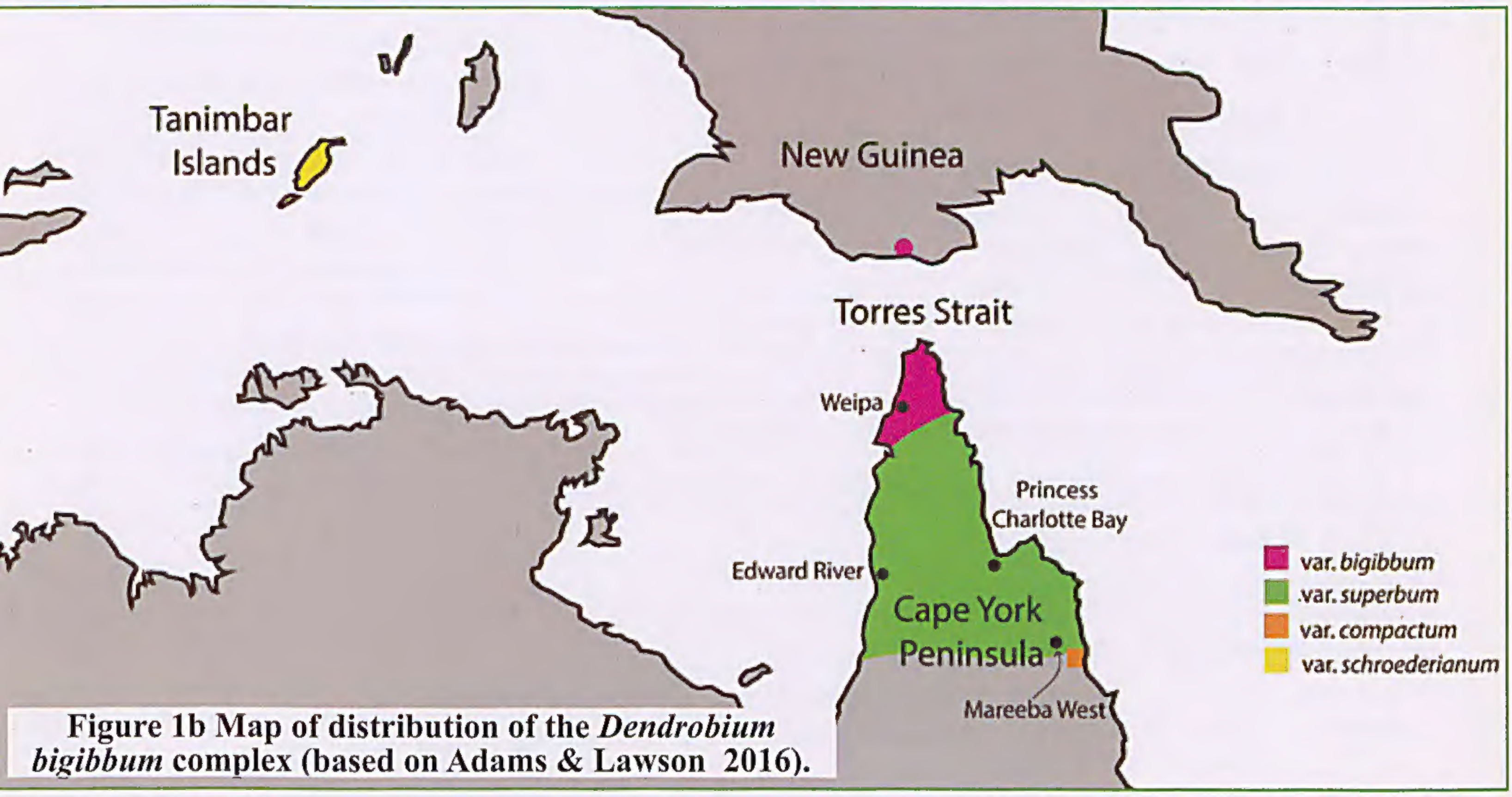


Figure 1b Map of distribution of the *Dendrobium bigibbum* complex (based on Adams & Lawson 2016).

1.	Aerial growths present or absent
2.	Pseudobulb length cm.
3.	Pseudobulb width cm.
4.	No. nodes with leaves
5.	No. leaves
6.	Leaf length cm.
7.	Leaf width cm.
8.	No. flowers
9.	Rachis length cm.
10.	Peduncle length cm.
11.	Flower length: dorsal tepal tip to labellar tip cm.
12.	Flower width across petals (flattened) cm.
13.	Pedicel length cm.
14.	Reflexing of sepals 0–5 (absent–marked)
15.	Reflexing of petals 0–5 (absent–marked)
16.	No. racemes per pseudobulb
17.	Racemes terminal, lateral or both
18.	Dorsal sepal length cm.
19.	Dorsal sepal width cm.
20.	Total petal length cm.
21.	Petal length, widest point to apex cm.
22.	Petal width cm.
23.	Lateral sepal length cm.
24.	Lateral sepal width cm.
25.	Tepal edge colour present or absent
26.	Tepal veins 0–2 (absent–intense)
27.	Labellar midlobe length cm.
28.	Labellar midlobe width cm.
29.	Total labellar length flattened cm.
30.	Forelobe width cm.
31.	Callus ridge prominence 1–5 (low–high)
32.	Labellar white patch size cm.
33.	Labellar hair density 1–3 (diffuse–profuse)
34.	Labellar apex shape 1–4 (rounded, emarginate, obtuse, truncate)
35.	Labellar hair length cm.
36.	Labellar hair colour 1–9
37.	Spur length cm.

Table 1. Morphological characters used in analyses (from Adams and Lawson 2016).

these two taxa are further discussed later in this article under sections on their respective type specimens. Dockrill (1969, 1992) used species and varieties in two separate accounts and Clemesha (1978) used an ultra-complex system of species, subspecies, varieties and subvarieties that was followed by ANOS Inc. for many years. The most recently described Australian taxon in the complex was *D. phalaenopsis* var. *compactum* C.T. White (1941), from north of Cairns. It has been ranked at various levels but had never been formally given a new combination as a variety of *D. bigibbum*.

Historically, the patch of white midlobe labellar hairs, emarginate labellar apex, rounded flower shape and reflexing segments have been used to identify *D. bigibbum* var. *bigibbum*. Larger flowers with no white patch and longer labellum were considered diagnostic features for *D. phalaenopsis*. A short stem, lithophytic habit and solid mauve labellum were used to designate *D. phalaenopsis* var. *compactum*. Floral characters such as petal and sepal width and labellar shape have also been used for taxonomic purposes.

Methods

Populations of the *D. bigibbum* alliance were located and examined in the field and in some collections with clear provenance. Hundreds of plants were inspected, and 160 plants, including plants from each key region, were measured and categorised for floral and vegetative characteristics (Table 1). Characters included those used historically to describe and differentiate taxa, and other characters identified as potentially useful. A further 245 plants, including 25 from Indonesia were measured, and the populations compared using Multidimensional Screening (MDS), a computer method to investigate similarity and difference between individual plants and between populations. This technique has been presented in *The Orchadian* for the *D. speciosum* complex (Adams, Burke and Lawson 2006).

Leaf samples were taken from plants at seven regional population sites for *ITS*-DNA sequencing using the method outlined in Burke *et al.* 2008. Photographs of relevant type specimens and literature from the 19th and 20th century were reviewed.

Results

Review of Type Specimens

The provenance and details of the types used to establish taxa, except for *D. phalaenopsis* Fitz. var. *compactum* C.T. White, have uncertain documentation and varying interpretations in the literature.

Dendrobium bigibbum Lindl. (1852)

The type at Kew is from a plant cultured by Loddiges in London ex 'New Holland' from a locality cited as "Mt. Adolphus, Torres Strait on the north-east coast of New Holland", based on Lindley's notes from 1856 . It was collected decades earlier and first flowered at Kew in 1824. Thomson, a collector for Loddiges, was listed as collector, but there may have been other collectors operating on the Torres Strait. Photographs of the type in the Lindley Herbarium show that the floral features are consistent with plants from that region as measured in this study.

Dendrobium phalaenopsis Fitzg. (1880)

The type specimen in the British Museum Herbarium is stated to be from Queensland. Fitzgerald (1880) recorded that it was cultivated in a garden at Balmain, Sydney, by Broomfield ex "near Cooktown, Queensland", with no collection date. Blake (1964) reported it as "obtained in N. Qld". There is no evidence that Captain Broomfield collected it in the wild. It consists of a single half closed flower with no visible labellar outline or structure, and is unsatisfactory for comparisons with living material. There is no collection date or location on the herbarium sheet. This specimen is the least reliable of the types.

Dendrobium bigibbum var. *superbum* Rchb.f. (1878)

Dendrobium bigibbum var. *superbum* was initially published by Reichenbach in 1876 in *Floral Magazine* ser. ii with a plate t.229, without an adequate description, and an accompanying specimen was not found. The name was therefore invalid, but Reichenbach later validated it by publishing a brief description in *Gardeners Chronicle* (Reichenbach 1878), which accords with the 1876 plate. The single raceme illustrated with 11 flowers, about 6.0 – 6.5 cm wide with a mauve labellum, is consistent with plants from the area designated as *D. bigibbum* var. *superbum* (Fig. 1a).

I reviewed photographs of Kew herbarium specimens from James Veitch and Sons dated 1878, and from Reichenbach's 1878 collection of the holotype in the National History Museum, Vienna. These pre-date Fitzgerald's type for *D. phalaenopsis* by two years and are clearly identifiable as *D. bigibbum* var. *superbum* (syn. *D. phalaenopsis*) as used in our analyses.

Character	Useful	Partially useful	Not useful	Comment
Short stem		+		Usually, not always diagnostic
Lithophytic habit			+	Seen in all areas
Flower shape			+	Tends to round in north, rectangular in south
Tepal reflexing			+	Higher % in north, inconsistent
White patch of labellar hairs		+		Seen in var. bigibbum and var. superbum
Labellar apex shape		+		Emarginate commoner in var. bigibbum, not distinguishing, several other shapes
Midlobe length		+		Shorter in north, mostly < 1.25 cm in var. bigibbum, not diagnostic
Midlobe width		+		Shorter in north, not diagnostic
Spur length		+		95% of var. bigibbum < 0.8 cm, not diagnostic
Labellar hair length			+	Variable across distribution
Labellar hair colour		+		Purple common in vars. compactum and superbum, also other colours
Flower no. per raceme			+	Not diagnostic, seasonal variation
Flower length			+	Similar across range
Flower width			+	Similar across range

Table 2. Characters used in classification of *Dendrobium bigibbum*.

Taxon	Plants	Flowers	Labellum
var. *bigibbum* Lindl.	No diagnostic characters. Variable	Tend to round Reflex significantly Spur usually < 8 mm	Most have a white patch of hairs of variable width Emarginate or curved at midlobe apex
var. *superbum* Hort. ex Rchb.f.	No diagnostic characters. Variable.	Tend round to rectangular Spur usually > 8 mm	Purple to white patch of hairs Mid lobe apex mainly curved
var. *compactum* (C.T. White) Peter B. Adams	Stems mainly short, moderate length when an epiphyte	Very similar to var. *superbum*	Purple to mauve patch of hairs Midlobe apex mainly curved
var. *schroederianum* (Hort. ex W. Watson) Peter B. Adams	No diagnostic characters. Variable.	Similar to var. *superbum*. Colours tend to be paler, many with white centre and mauve/purple in outer zone.	Prominent mauve to purple on midlobe, midlobe apex curved

Table 3. Characteristics of *Dendrobium bigibbum* varieties.

Dendrobium phalaenopsis var. *compactum* C.T. White 1941

White's description is based on a short-stemmed plant collected from a rock face approx. 20 km long on the eastern side of the Macalister Range at Hartleys Creek, northwest of Cairns, which is the origin of all var. *compactum* plants measured in the analyses. Plants and flowers illustrated, and accompanying White's formal description (1941), are consistent with plants in this study from Macalister Range.

D. bigibbum var. *schroederianum* (Hort. ex Masters) Peter B. Adams (formerly *Dendrobium phalaenopsis* Fitzg. var. *schroederianum* Hort. ex Masters 1891).

A type specimen has never been found and may not have been made. A neotype, made in 2013 from a collection in the Tanimbar region, was lodged at the National Herbarium Melbourne and a duplicate sent to the Herbarium at Kew.

Characters Used to Identify Australian *Dendrobium bigibbum* taxa

Analysis of morphological characters (Table 1) was performed for the study locations. The location listed as Cape York Tip includes the Torres Strait Islands - Possession Islands, Horn Island and Prince of Wales Island (Figs.1a, 1b). The usefulness of characters in differentiating taxa was evaluated (Table 2).

Lithophytic habit can occur in all taxa, so is not a major diagnostic character. *Dendrobium bigibbum* var. *compactum* generally has shorter stout stems, but will grow longer and narrower in shaded locations, especially when epiphytic. *Dendrobium bigibbum* var. *superbum* has some short compact forms when growing in a more exposed situation. North west of Mt. Molloy (40 km north of Mareeba) there are populations with a mix of short and stout stems, and longer and narrower stems up to 30 cm.

There is a higher frequency of racemes with low flower numbers (1–4) in *D. bigibbum* var. *compactum* compared with the more northerly varieties. Flower length and width show wide variation, with larger flowers in *D. bigibbum* var. *compactum* and var. *superbum*, and smaller flowers for var. *bigibbum* (Cape York Tip, Torres Strait Islands and Weipa). Weipa plants show wide variation in flower size, including very small flowers. Populations at Edward River and Princess Charlotte Bay have the largest flowers, with approximately 80% and 50% respectively of flowers wider than 6 cm. Flower length and width are not useful characters in assigning plants to taxa.

Reflexing of petals and sepals show much variation within and between sites. It is most pronounced in some flowers of *D. bigibbum* var. *bigibbum*. It also increases with flower age in all taxa, and is of little use in separating taxa. Spur length is longer in *D. bigibbum* var. *compactum* and var. *superbum*, and shortest in var. *bigibbum*, where it is rarely > 0.85 cm. Spur lengths of ≤ 0.7 cm are almost always indicative of *Dendrobium bigibbum* var. *bigibbum*, so this is a useful character in identifying most var. *bigibbum* when combined with other characters. Spur length is not useful in separating the other two taxa. Flower shape is highly variable within and between populations. Flowers of *D. bigibbum* var. *superbum* and var. *compactum* are often more rectangular in shape, while var. *bigibbum* tends to be more rounded. Shape is too inconsistent to be a useful character for separating taxa.

Labellar midlobe length shows wide variation, with lengths up to 1.8 cm. *Dendrobium bigibbum* var. *bigibbum* are almost always < 1.25 cm long, mostly < 1.0 cm. This is a useful character to separate many, but not all, var. *bigibbum* plants. Midlobe width shows similar variation that correlates well with midlobe length. Labellar midlobe apex shape is recorded in four categories - curved, emarginate, V-shaped and spade-shaped. The first two are most common. Curved apices are mainly seen in *D. bigibbum* var. *compactum* and var. *superbum* (55 – 86%). Emarginate shape is seen in 70 – 80% of var. *bigibbum*. The remaining flowers in var. *bigibbum* have spade-shaped or curved apices. This character on its own is not reliable for identification, and is only a partially useful distinguishing character when combined with others.

A "white patch" is often mentioned as a key diagnostic feature of *D. bigibbum* var. *bigibbum*. The patch consists of white to pale mauve hairs of various lengths and density distributed on the centre of the midlobe (Fig. 2). Width of the patch varies from 0.05 – 0.38 cm. It is most noticeable in *D. bigibbum* var. *bigibbum* (although in 20% it is small and inconspicuous), and is also present in around 20% of *D.* var. *superbum* at Princess Charlotte Bay and Edward River. *Dendrobium bigibbum* var. *superbum* and var. *compactum* have hairs that are predominantly purple, creating a "purple patch" but there are also combinations of green, white and mauve. A white patch is rare in *D. bigibbum* var. *compactum*. The patch is helpful, but not a reliable diagnostic character for *D. bigibbum* var. *bigibbum*.

Labellar midlobe characters of apex shape, length and width, patch of white hairs, hair colour and spur length are only partially useful in distinguishing taxa. Flower number per raceme and other characters listed in Table 1 were not useful. Labellar hair colour is of limited usefulness. Solid purple and mauve coloured hairs predominate in the southern half of the distribution. In the north of Cape York white hairs of variable prominence are common, but there are also combinations of white, green, mauve, and purple hairs.

In summary, the variation of characters overlap too much over the distribution range for any of them to be diagnostic for any described variety or location. There is a continuum with a north-south gradation of characters, with generally smaller dimensions and narrower ranges for floral characters in the north, and larger ones in the south. A combination of stem length, midlobe length and width, colour and width of patch of labellar hairs, tepal reflexing and spur length (Table 3, Key) can be used to identify many, but not all plants of the three taxa associated with three geographical areas. The northerly *D. bigibbum* var. *bigibbum* is usually distinguishable from var. *superbum* (central Cape York) by a combination of emarginate midlobe apex shape, smaller midlobe dimensions, larger white patch of labellar hairs and a shorter spur. In the south, *D. bigibbum* var. *compactum* is usually identifiable by short fusiform stems, a smaller number of flowers and purple coloured labellar hairs. Floral variation is similar in *D. bigibbum* var. *superbum* and var. *compactum*, and is usually recognisable and distinct from var. *bigibbum*, however there are zones where the features intergrade between var. *compactum* and var. *superbum*, and between var. *superbum* and var. *bigibbum*.

Morphometric (Ordination) Analyses

The morphometric MDS technique offers a visual representation of the overall similarity and differences between all plants sampled, illustrated in three dimensions (or a 3D box).An example of one of the analyses of Adams and Lawson (2016) for vegetative and floral characters of plants from all regions is presented in Fig. 3. The result indicates that in every dimension, I-II, III-I, and II-III, there is a single group, with no subgroup of plants ordinating (separating) from the others. This provides strong evidence that on morphological grounds there is a single species complex. Other analyses of the regions produced the same result, most notably the analysis of var. *schroederianum* (Tanimbar region, Indonesia) plants with var. *superbum* and var. *compactum*, where all plants shared the same ordination space, indicating that var. *schroederianum* populations are not morphologically separated from the Australian varieties. Plants of Cape York Tip/Torres Strait and Weipa (var. *bigibbum*) show a partial separation, but intergrade in ordination space with other regions representing the other varieties.

ITS-DNA

Representative samples were taken from seven populations from north to south in the distribution range, including Tanimbar islands (Indonesia). The Australian populations were: Cape York Tip/ Torres Strait, Weipa, Princess Charlotte Bay, Edward River, Mareeba West, and Macalister Range. There were identical sequences in a total of 698 base pairs, except for a single base variation

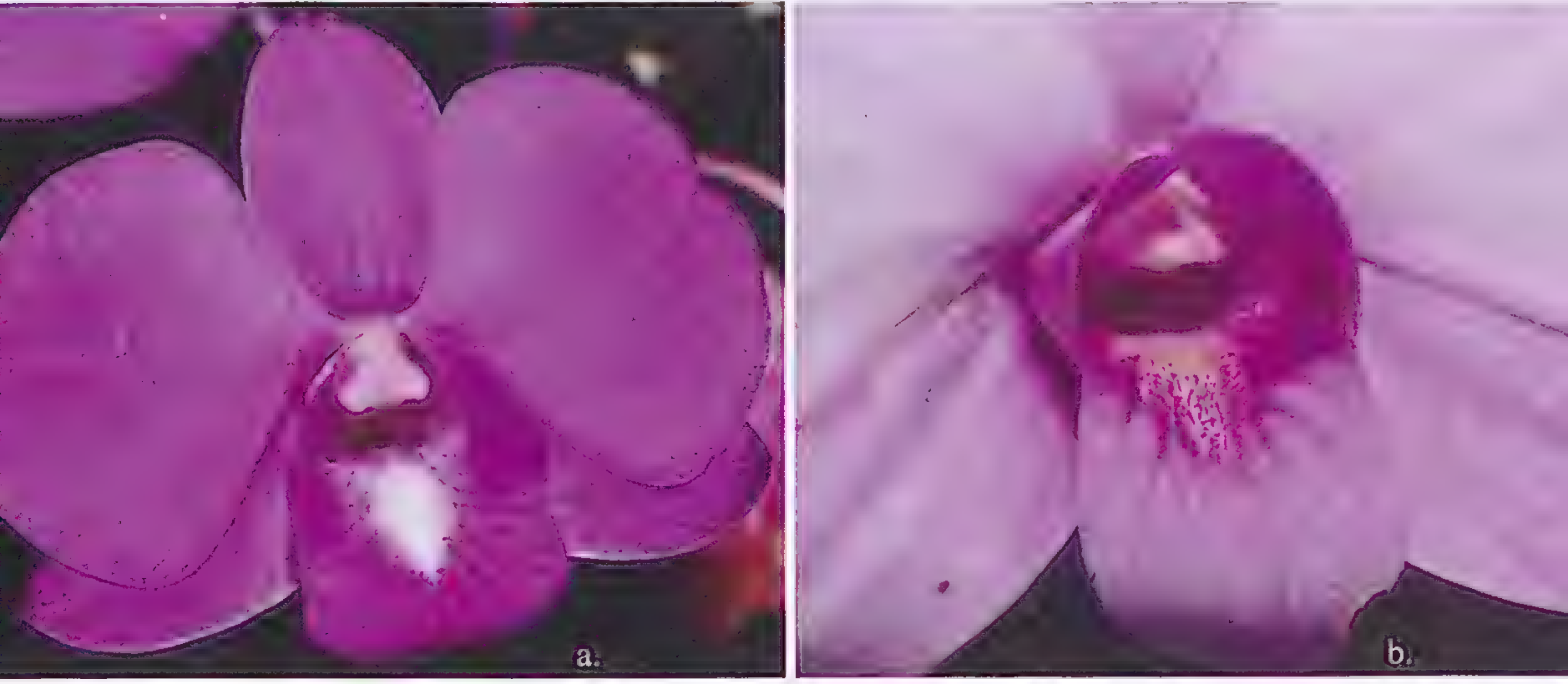


Figure 2 *Dendrobium bigibbum* close up of hairs on labellum (a) white hairs (b) purple hairs. (a) Edward River, Cape York. (b) Possession Island, Torres Strait.

Locality	Variety	No. Plants in Study	Coordinates
Weipa	*bigibbum*	35	12°39'S 141°50'E
Mareeba West	*superbum*	34	16°59' S 145°25' E
Mowbray	*compactum*	2	16°33'145°28'E
Princess Charlotte Bay	*superbum*	28	14°31'S 143°49'E
Edward River	*superbum*	5	14°53'S 141°37'E
Mt. Holmes	*superbum*	1	16°04'S 144°32'E
Mt. Bremer	*bigibbum*	1	10°40'S 142°27'E
Possession Island	*bigibbum*	6	10°46'S 142°22'E
Bellevue	*superbum*	2	15°36'S144°16'E
Pascoe River	*superbum*	3	13°57'S 143°52'E
Elizabeth Creek	*superbum*	2	18°04'S 144°11'E
Cape York Tip	*bigibbum*	11	10°45'S 142°24'E
Cooktown	*superbum*	2	13°29'S 144°02'E
Macalister Range	*compactum*	12	16°34'S145°27'E
Starcke River	*superbum*	1	14°49'S 145°01'E
Seisia	*bigibbum*	2	10°50'S 142°22'E
Horn Island	*bigibbum*	1	10°36'S 142°17'E
Lakefield	*superbum*	1	15°20'S 144°27'E
Iron Range	*superbum*	2	11°41'S 142°30'E
South of Edward River	*superbum*	20	14°55'S141°37'E
North of Edward River	*superbum*	16	14°52'S141°37'E
South of Princess Charlotte Bay	*superbum*	25	14°33'S143°51'E
Mitchell River	*superbum*	3	15°39'S 143°11'E
Tanimbar Islands	*schroederianum*	24	7°14'S131°55'E
Hartleys Creek	*compactum*	3	16°35'S145°28'E
Observation Hill	*compactum*	6	16°35'S145°27'E

Table 4. Assignment of plants in regions to *Dendrobium bigibbum* varieties (based on Adams and Lawson 2016).

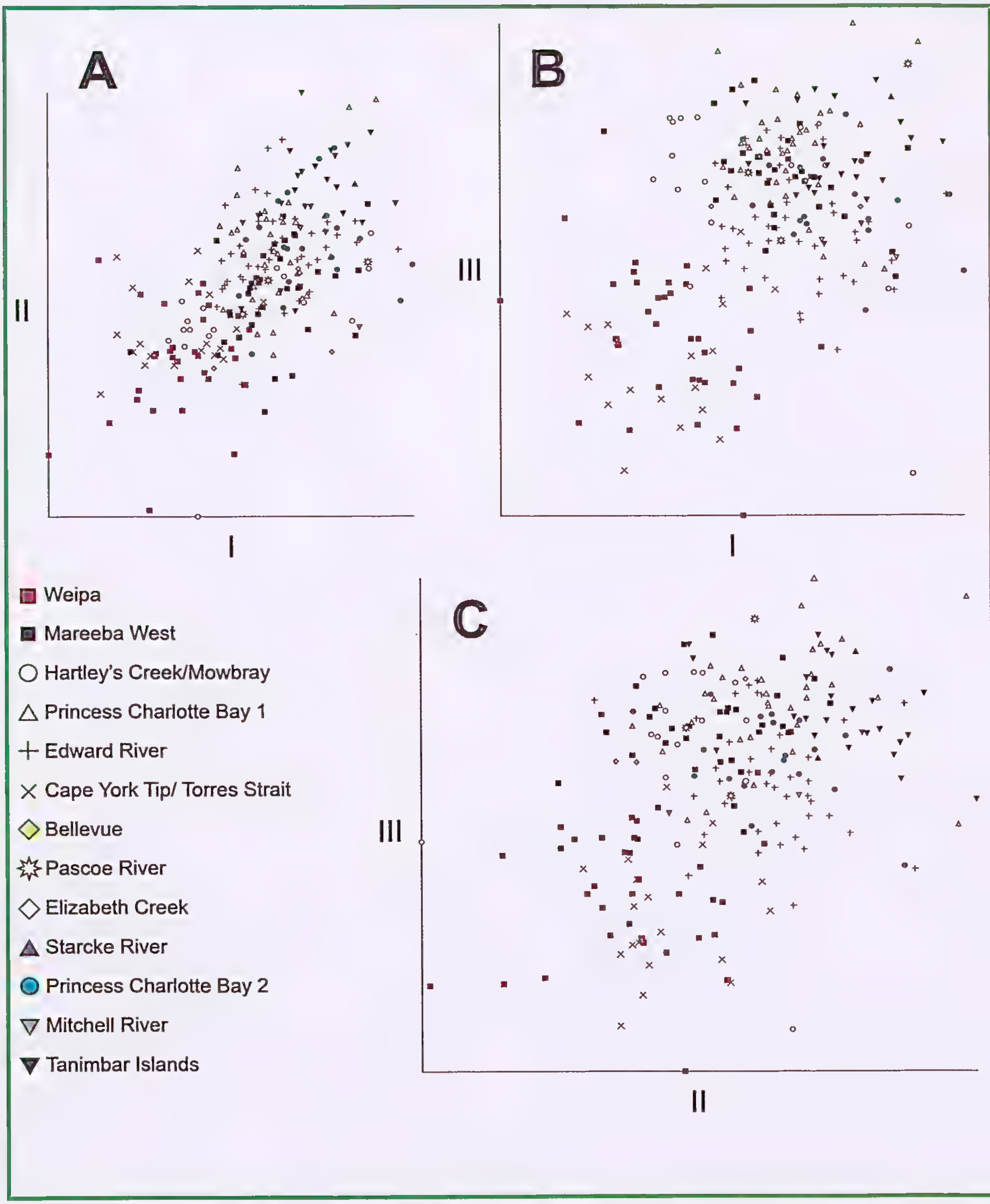


Figure 3 Morphometric analysis of vegetative and floral characters for plants of all areas including Tanimbar Islands (from Adams and Lawson 2016).

in one of two *D. bigibbum* var. *superbum* samples from Mareeba West, and a difference of two bases for var. *bigibbum* from near the tip of Cape York (Adams and Lawson, 2016).

Assignment of Regional Variants to Taxa (Fig. 1ab, Table 4)

Plants along the northernmost part of Cape York and the Torres Strait islands are typical of *Dendrobium bigibbum* var. *bigibbum.* At the southern extreme, the few remaining naturally occurring plants on Macalister range and the Mowbray area near Mossman belong to *D. bigibbum* var. *compactum*, with some isolated examples further north and west, some intergrading with var. *D. bigibbum* var. *superbum.*

In the largest area of distribution, plants of the Cooktown region and north to Princess Charlotte Bay are typical of *Dendrobium bigibbum* var. *superbum.* Plants northwest of Mareeba, which are assigned to var. *superbum*, show more variation in plant form and flower size, and rarely have a midlobe white hair patch. There are some differences in the frequency of character subsets compared to other var. *superbum*, but the three key labellar characters (midlobe length, midlobe apex shape, hair patch) closely resemble other var. *superbum* populations.

Populations in the west on the Gulf of Carpentaria have until now received insufficient evaluation to assign to a taxon. This study shows that several populations in the Edward River region are best assigned to *D. bigibbum* var. *superbum*. They have close affinities with Princess Charlotte Bay and Mareeba West plants, with only small differences in character dimensions, but have a somewhat different frequency distribution of the subsets of individual characters. Further north on the Gulf in the Weipa region, there is much variation in flower size with some plants that bear miniature flowers. There is variation in size of the patch of white hairs, which is usually present. Spur lengths are very short, as at the tip of Cape York, and these plants are recognisable as *D. bigibbum* var. *bigibbum* towards its southwest limit.

Plants from the Tanimbar island region of Indonesia are assigned to *D. bigibbum* var. *schroederianum.* Although geographically separate at present, there have been long periods in geological time when this area has been connected to Australia.

Distribution

Dendrobium bigibbum var. *compactum* is restricted to a small area on the Macalister Range between Cairns and Mossman with a few small populations extending north, where there is intergrading with the southern examples of *D. bigibbum* var. *superbum* north of Mareeba and Mt. Molloy (Fig. 1a). *Dendrobium bigibbum* var. *superbum* is found from this area in the south including the Cooktown region, Edward River area on the Gulf of Carpentaria and north to a line from south of Weipa to an as yet undefined area near Iron Range in the east. *Dendrobium bigibbum* var. *bigibbum* is found north of that line to the tip of Cape York and extends into the Torres Strait Islands. There is a small population growing on *Melaleuca* reported from Baimuru Swamp in southern Papua New Guinea (Millar 1999), and the most northerly taxon is var. *schroederianum* in Indonesia.

Discussion

Types

A review of type specimens indicates that *D. bigibbum* var. *bigibbum* and *D. phalaenopsis* var. *compactum* have good provenance and are consistent with the respective populations investigated in this study. The type for *D. phalaenopsis* is of uncertain provenance, consisting of one poorly opened flower with none of the identifying characters visible, and is unsatisfactory for comparison with other specimens, living or in herbaria. The Veitch and Reichenbach collection material for *D. bigibbum* var. *superbum* do represent examples of that taxon as determined in this study.

Variation in the *Dendrobium bigibbum* Complex

Variability across the distribution has been noted by many. The extent of variation in and between main populations is now well established and relates to the size, shape and colour of flowers and to characteristics of the labellum. The key finding is that there are no absolute differences in single characters found throughout the *D. bigibbum* distribution. The characters used historically to delineate taxa at specific rank are not reliable due to wide variations of character frequencies in different populations and a continuum of variation related to geography and habitat. *ITS*-DNA sequences are not significantly different in the populations sampled.

There are only one or two base differences between regional populations out of a total of 700 bases in the *ITS*-DNA results, which are interpreted as not supporting any separate species. At species level gene trees are not necessarily species trees (Stuessy 2009 p. 294), and this is often the case at varietal rank, for example, in *D. speciosum*, where the six most southerly and well-established varieties identifiable by morphological characters have identical *ITS*-DNA sequences (Burke *et al* 2008). Morphological characters and geography provide strong evidence for the use of four varieties. At a practical level, people familiar with the *D. bigibbum* alliance are often, but not always, able to recognise varieties using the characters in Table 1. The floral features of *D. bigibbum* var. *compactum* overlap considerably with var. *superbum* but vegetative plant form, distribution and long historical use are factors considered in retaining it as a variety.

Considering all of the data in the studies, field, morphological and molecular, the conclusion is of one species with four varieties, with *D. bigibbum* var. *compactum* very similar to var. *superbum* in floral features. The var. *compactum* population is now so reduced that it is not possible to adequately study the variation known to exist prior to mid 20th century. The numerical data point to assigning the majority of populations in Cape York to *D. bigibbum* var. *superbum*. *Dendrobium bigibbum* var. *bigibbum* has a north/north-west Cape York and Torres Strait distribution. There are intergrading forms where the taxa meet in far north Cape York (Bramwell Station and Olive River area for *D. bigibbum* var. *superbum* and var. *bigibbum*), and in the south, northwest of the Mossman region (for var. *superbum* and var. *compactum*). Shifting populations observed on Cape York over the past 50 years are likely to be responsible for intergrading, with the Tanimbar region plants of *D. bigibbum* var. *schroederianum* geographically separate to the northeast.

Taxonomy

Previous classifications ranged from a single variable species (Blake 1964, 1966; St. Cloud 1958) to complex ranks of subspecies, varieties, sub-varieties and forms and establishment of a new genus *Vappodes* for *Dendrobium* sect. *Phalaenanthe* (Clements and Jones 2002). *Vappodes* was been reduced to synonymy in *Genera Orchidacearum* (Pridgeon *et al*. 2014). The results presented here and in more detail in Adams (2015) and Adams and Lawson (2016) are consistent with a single species of four varieties. The lack of several consistently different characters between the taxa, and largely allopatric distribution with some overlap favours the use of varieties, following Stuessy (2009). The use of a single taxon for the alliance was considered but rejected due to the level of difference in combinations of characters found in the four geographical regions and the continuing usefulness of a classification of subgroups used historically for more than a hundred years.

The following classification (Table 5) for *D. bigibbum* takes into account past and current use, and evidence from field and population studies. Information on types for historical taxa no longer recommended for use may be consulted in Blake (1964) and the WCSPF. Many of the varieties listed in the WCSPF under *D. bigibbum* Lindl. and *D. phalaenopsis* Fitzg. represent single plants that are colour variants, and these have been reduced to synonymy. Others are natural hybrids of *D. bigibbum* that have been identified as such. The classification has been accepted by the WCSPF and RHS registration of *Dendrobium* hybrids. The most significant change is the establishment of *D. bigibbum* var. *superbum* as an accepted name, and the relegation of *D. phalaenopsis* to synonymy. Another change strongly supported by the data is that the Indonesian plants are part of the *D. bigibbum* complex and not recognised as a separate species.

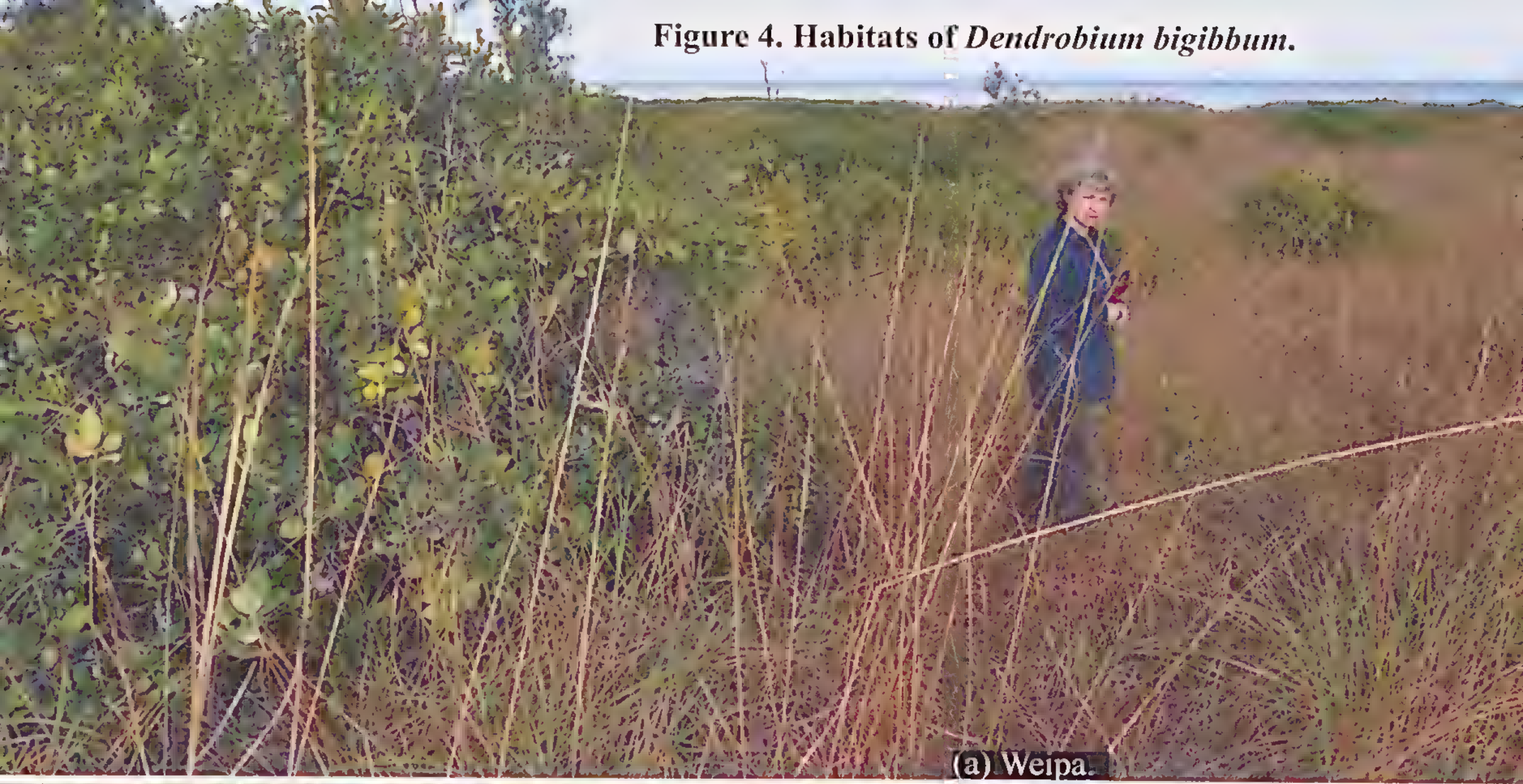
Dendrobium bigibbum* Lindl. var. *bigibbum (Lindley 1852)
Type: cult. London ex. 'New Holland' Loddiges. (holotype Kew Herbarium).

This is the first described and most distinct variety. No single character sets it apart, but several in combination make it possible to identify most plants from the distribution range. Plants in southern Papua New Guinea illustrated in Millar (1999) appear consistent with this variety.

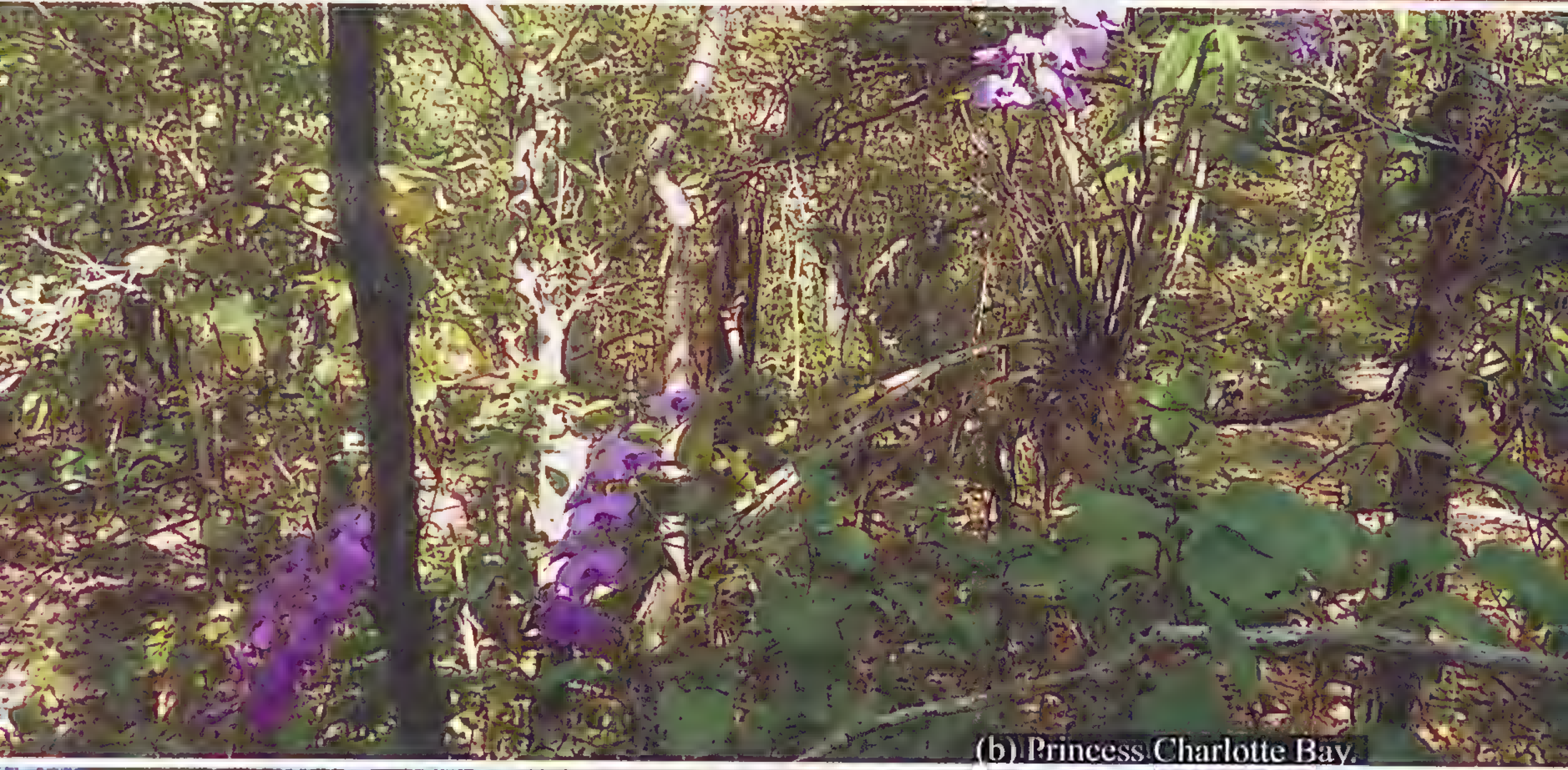
Dendrobium bigibbum* var. *superbum Rchb.f. (1878).
Type: Reichenbach Collection, Natural History Museum, Vienna.

The holotype is stated as collected by Veitch in 1878. The labellar and spur characteristics are consistent with the material referred to in this paper as *D. bigibbum* var. *superbum*. *Dendrobium bigibbum* var. *superbum* is the recommended name for plants from the major part of the distribution range within Australia, which includes central and southern parts of Cape York Peninsula. Review of the history, types and study of naturally occurring plant populations provides a strong basis for preferring this ranking over specific status as the later described *D. phalaenopsis* Fitzg. Most Australian orchid writers and growers are currently using *Dendrobium bigibbum* var. *superbum* for these plants.

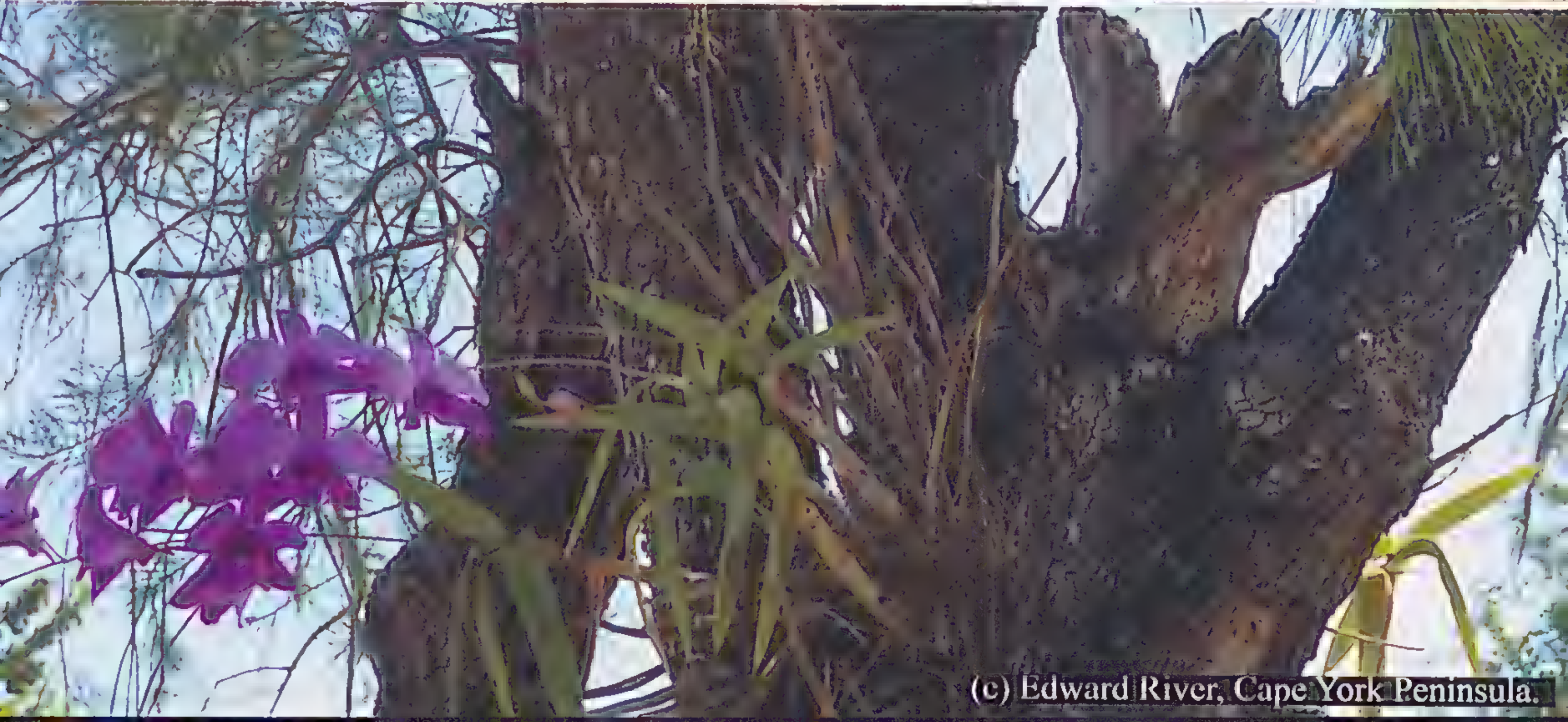
Figure 4. Habitats of *Dendrobium bigibbum*.



(a) Weipa.



(b) Princess Charlotte Bay.



(c) Edward River, Cape York Peninsula.

Dendrobium bigibbum* var. *compactum
(C.T.White) P.B. Adams, *comb. nov.*
Type: cult. Brisbane ex Hartley's Creek, Qld.
1941. A. Hilsden. (lectotype Queensland
Herbarium, Brisbane).

Dockrill used two different classifications (1969, 1992). In the latter he listed var. *compactum* as a variety of *D. bigibbum* but regarded the flowers as indistinguishable from var. *superbum* and decided not to make a new combination as "there have been so many combinations suggested by many authors". The variety has a largely separate distribution and history arguably supports its status as a separate taxon. There is some intergrading with var. *superbum* in the north of its range. *Dendrobium bigibbum* var. *compactum* often has fewer flowers per raceme (White 1941), but there is much overlap between the characteristics of these taxa. The following key can be used to identify many, but certainly not all, plants.

Dendrobium bigibbum* var. *schroederianum
(Hort. ex W. Watson) Peter B. Adams, *comb. nov.*
Neotype: cult. ex Tanimbar region, Indonesia.
Peter B Adams 2013. (Melbourne Herbarium,
Kew Herbarium)

Long known as *D. phalaenopsis* var. *schroederianum,* this taxon closely resembles *D. bigibbum* var. *superbum*. It has been confused with it for many years and is not distinguishable in population analyses. It was given specific status in Clements (1989) as *D. striaenopsis*. When many plants are examined, prominent striae or coloured veins are seen in only occasional plants, at a frequency similar to that in *D. bigibbum* var. *superbum*. The flowers tend to be paler and more frequently bicoloured than in *D. bigibbum* var. *superbum*, but there is overlap in characteristics.

Key and Classification of the *Dendrobium bigibbum* complex

1a. Stems short, usually less than 20 cm on a mature plant, and usually stout, fusiform above a narrowing (collum) at the base. Macalister Range .... **var. *compactum***

1b. Stems elongated, not stout and fusiform, usually greater than 20 cm on a mature plant, with a narrowing (collum) at the base....................... 2

2a. Tepals usually reflexing significantly, spur usually less than 0.8 cm long, midlobe length usually less than 1.0 cm, mostly emarginate at apex .... **var. *bigibbum***

2b. Tepals only slightly reflexing, spur mostly greater than 0.8 cm. Midlobe length usually greater than 1.0 cm, mostly rounded at apex................. 3

3a. Flowers mainly pale to deep mauve, rarely with deeper mauve on the outer tepals (plants of Cape York peninsula, Australia)............. **var. *superbum***

3b. Flowers mainly white/pale mauve often with deeper mauve on the outer tepals (plants of Tanimbar- Ambon islands in Indonesia) .... **var. *schroederianum***

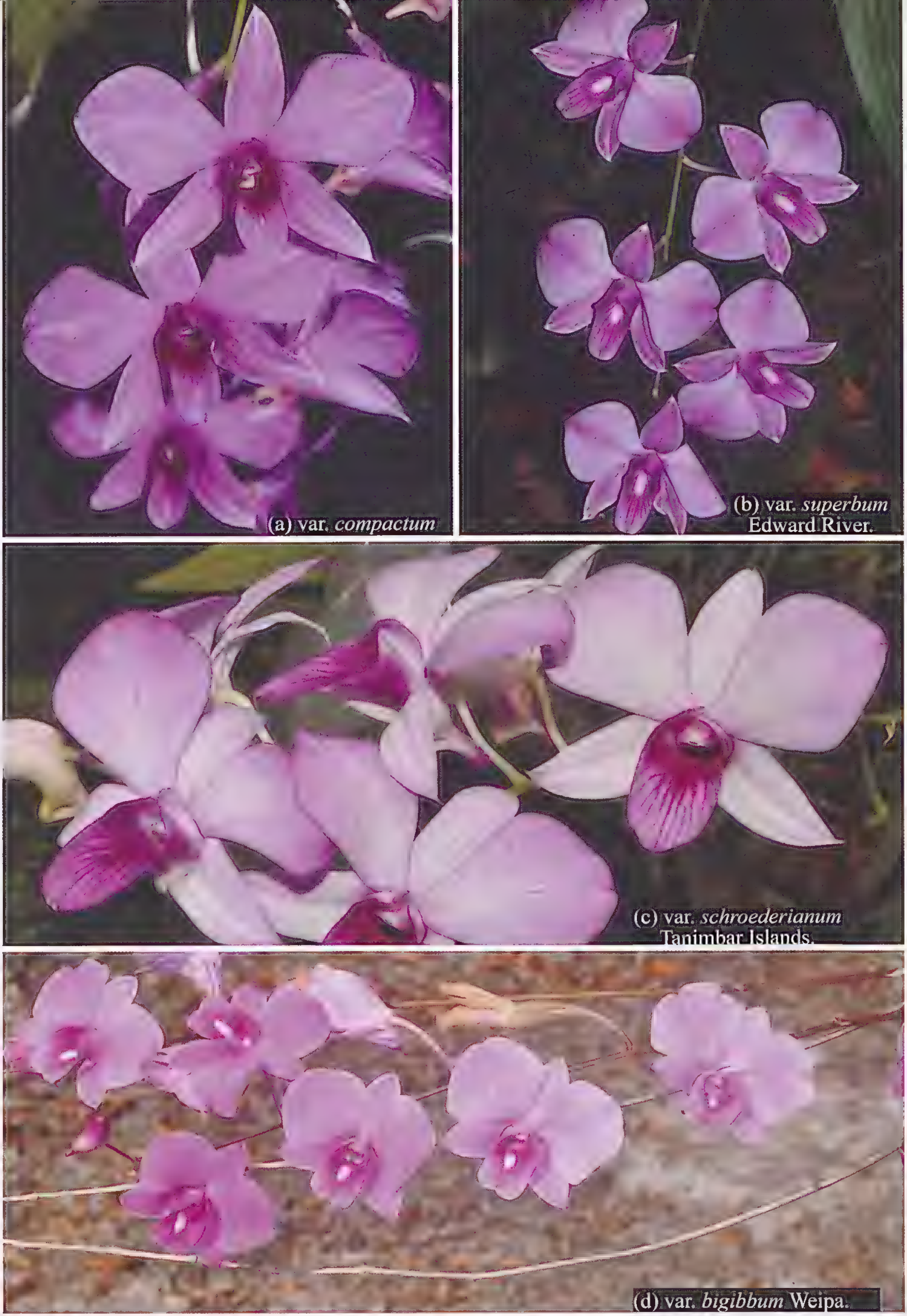
The key will not identify all plants correctly, illustrating that populations contain a wide variation, particularly in colour and size, and the taxa are closely related.

Pictorial Gallery of the *Dendrobium bigibbum* Complex

Some habitats are illustrated in Figure 4, with coastal monsoonal vine thicket and low forest prominent. Racemes, and single or groups of flowers from all regions, illustrate the subtle differences of appearance within and between varieties (Figs. 5–9). The racemes present similarly in all varieties, and the floral differences are all quantitative, related to size of characters for total flowers and segments, colour variation, labellar features, variable prominence of floral veins and degrees of segment reflexing. Of particular note, the veining in *D. bigibbum* var. *schroederianum* is an inconsistent feature, appearing prominent in some paler flowers, but no more common than in var. *superbum* when populations of regional plants are considered. Flower colour range is from white to purple in many areas, with some bicolour forms.

Implications for Registration of *Dendrobium bigibbum* hybrids and Line Breeding

The RHS Orchid Register now recognises a single species, *D. bigibbum,* in the complex, rather than a number of separate species as previously. These are now all synonyms. It generally does not recognise and use taxa below the level of species. With respect to past registrations it will continue the use of established hybrid names, as any wholesale change is not practical. Many of these hybrids were made with taxa that are now considered synonyms of *D. bigibbum*. When the composition of past hybrids is considered, often quoted in percentages, component taxa at species level such as D. *phalaenopsis* (now regarded as a synonym) can all be regarded as *D. bigibbum*. It is not possible to retrospectively establish the provenance and



(a) var. *compactum*

(b) var. *superbum* Edward River.

(c) var. *schroederianum* Tanimbar Islands.

(d) var. *bigibbum* Weipa.

Figure 5. ***Dendrobium bigibbum*** **racemes.**

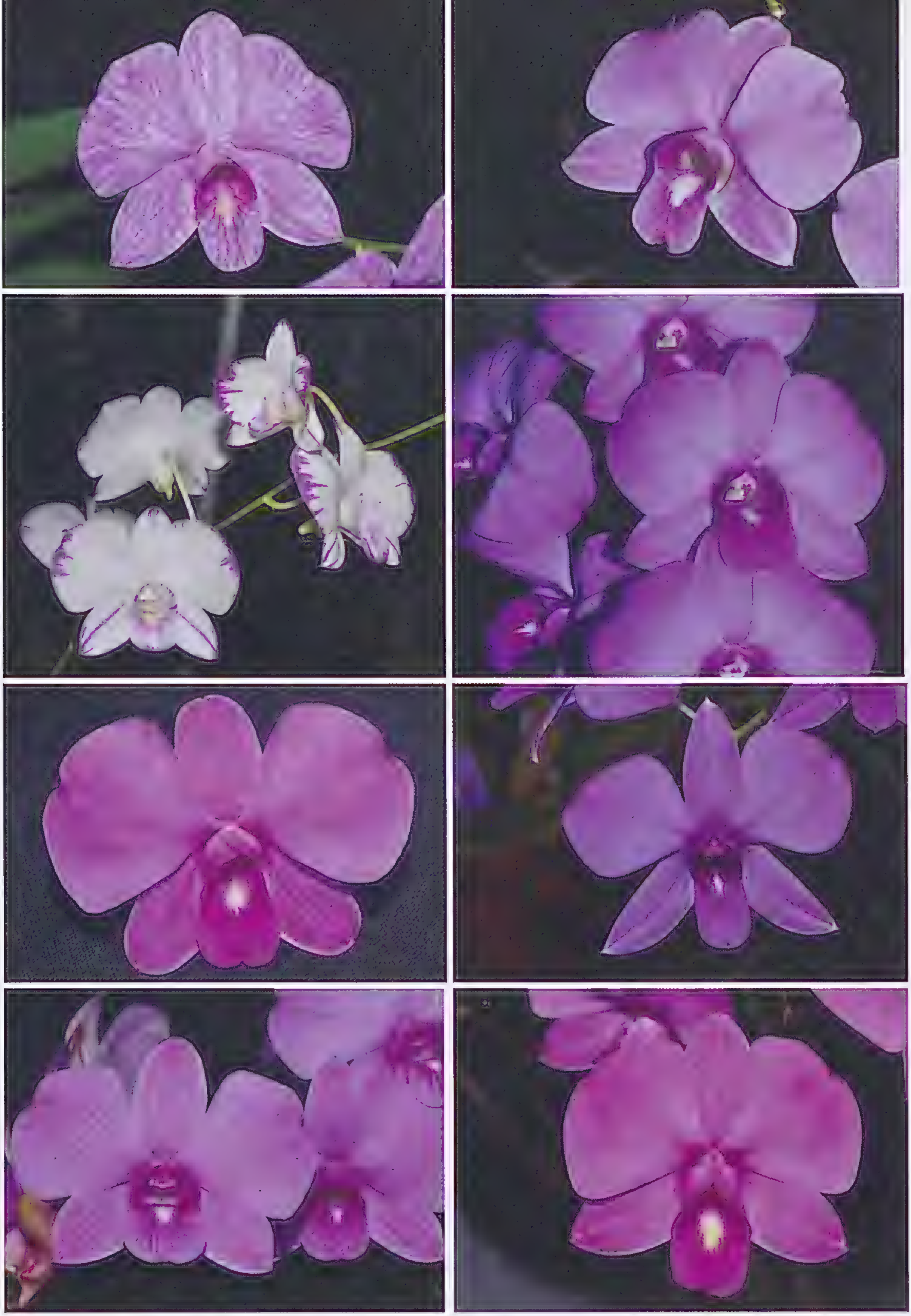


Figure 6. ***Dendrobium bigibbum*** **var.** ***bigibbum*** **from Cape York Tip, Horn Island, Possession Island (Torres Strait), Weipa.**

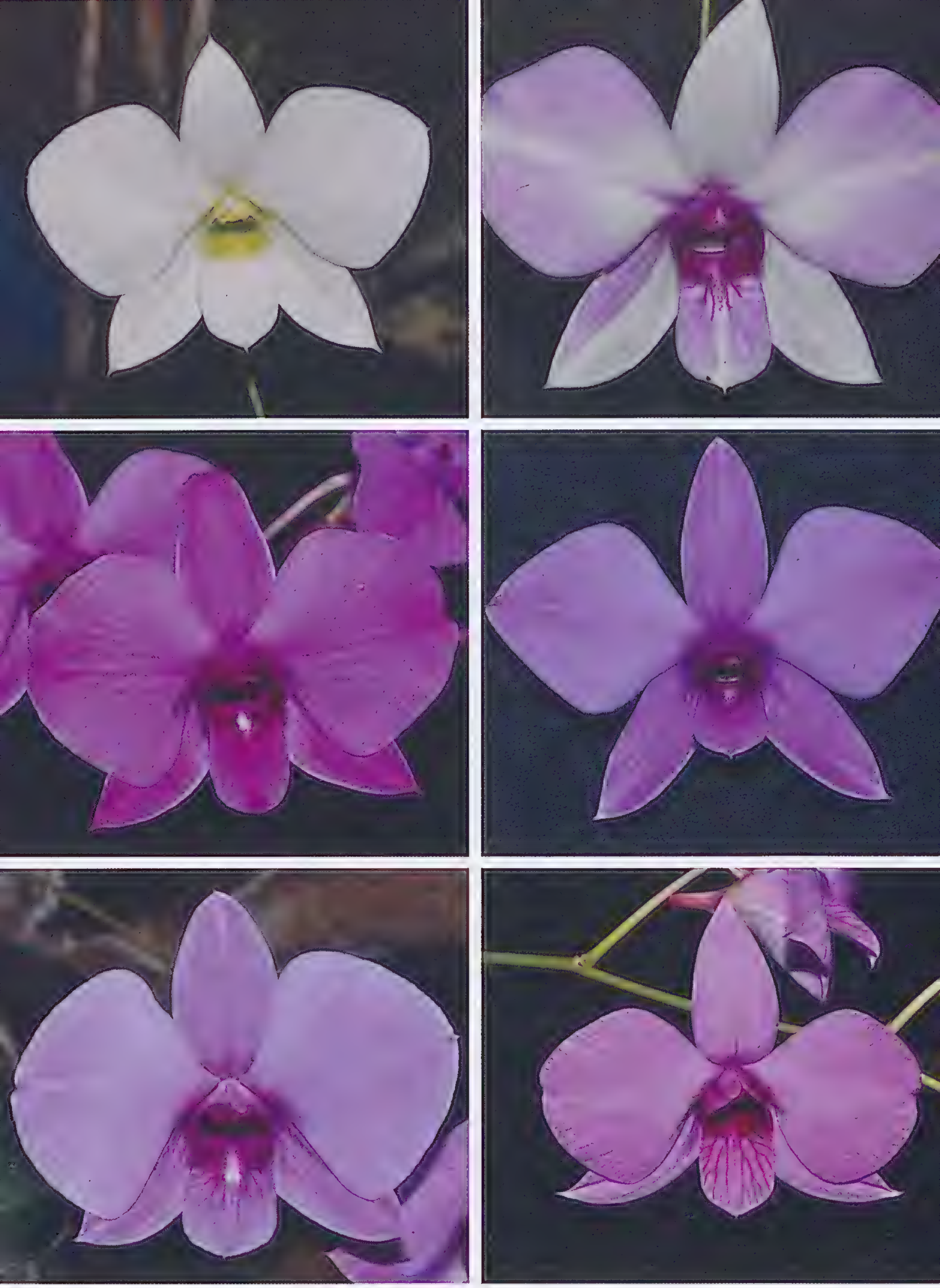


Figure 7. ***Dendrobium bigibbum*** **var.** ***superbum*** **from Bellevue, Edward River, Mareeba West, Mitchell River, Princess Charlotte Bay, Starcke River.**

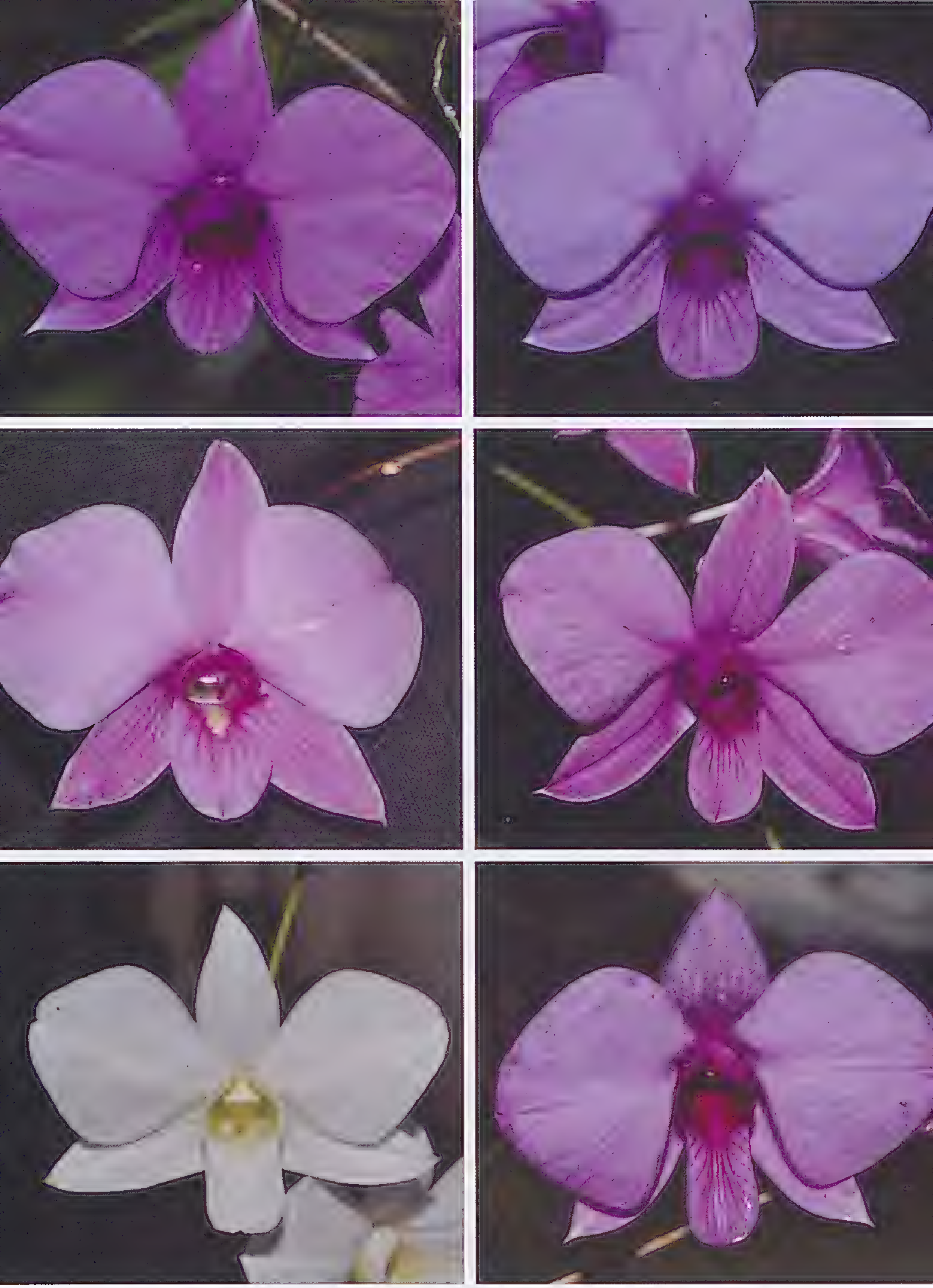


Figure 7. ***Dendrobium bigibbum*** **var.** ***superbum*** **(Continued from previous page).**

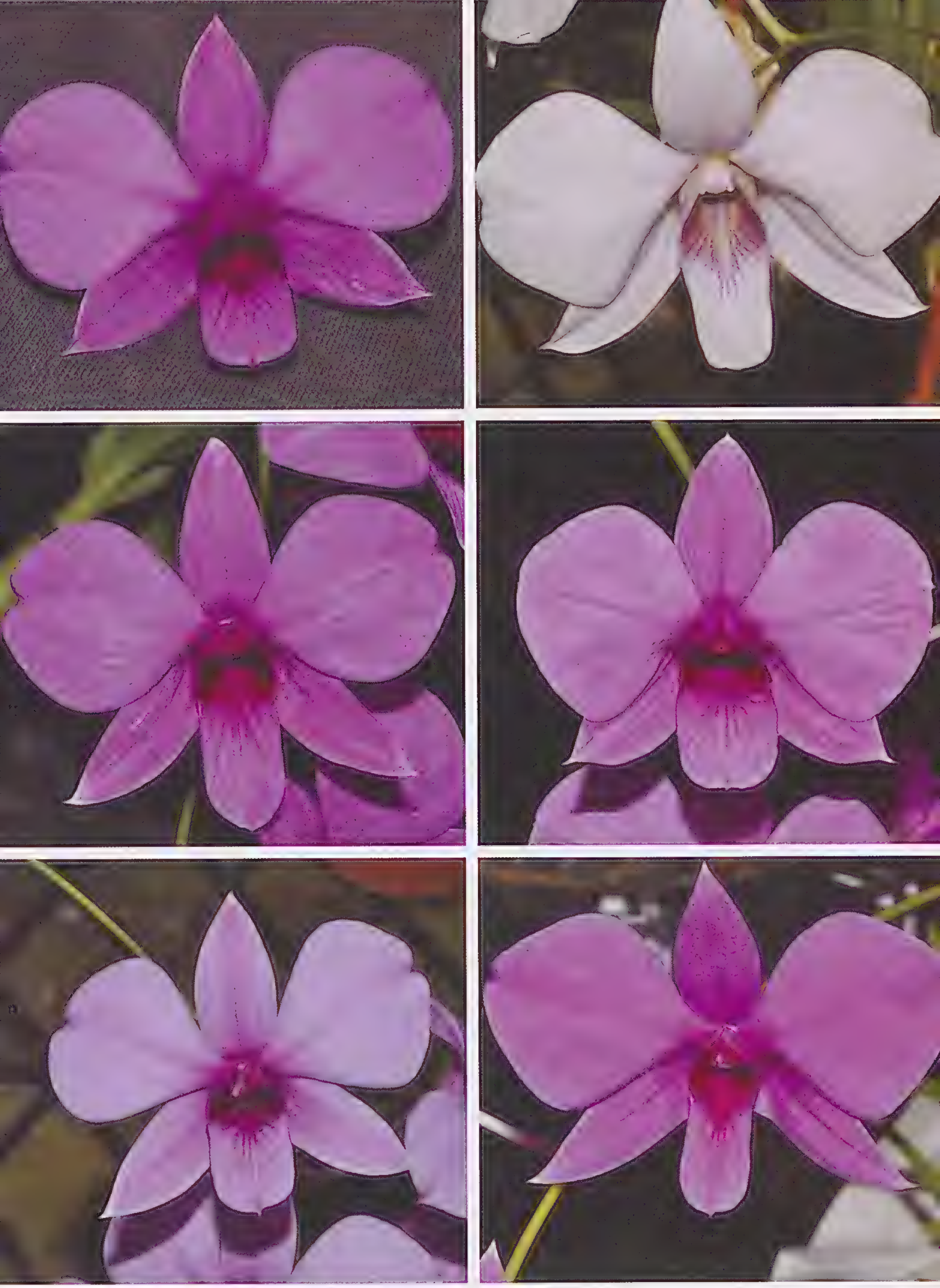


Figure 8. ***Dendrobium bigibbum*** **var.** ***compactum.***

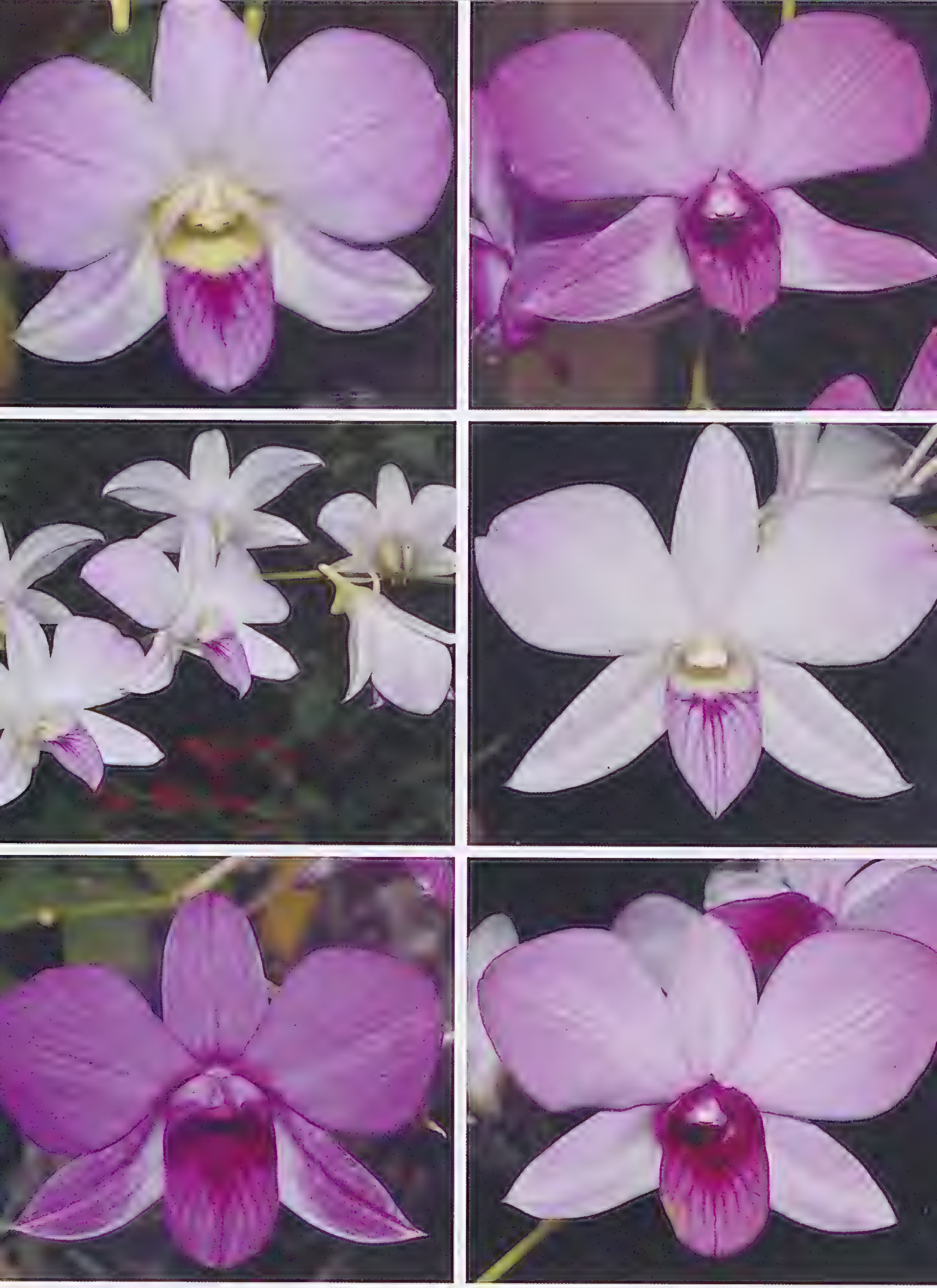


Figure 9. ***Dendrobium bigibbum*** **var.** ***schroederianum.***

***D. bigibbum* var. *bigibbum* Lindl.**
***D. bigibbum* Lindl. var. *superbum* Rchb.f.**
***D. bigibbum* Lindl. var. *compactum* (C.T. White) Peter B. Adams**
***D. bigibbum* Lindl. var. *schroederianum* (Hort. ex W. Watson) Peter B. Adams**

Table 5. Classification of the *Dendrobium bigibbum* complex.

origin of most parents. In January 2018, Julian Shaw, Registrar, RHS Orchid Register, examined the original registration records for provenance and identification of *D. bigibbum* used as a parent in hybrids. He confirmed that very few had any provenance or detail at all, and that the only names presented were non-specific and not identifying. In the register, 326 hybrids listed *D. phalaenopsis* as a parent, and 289 listed *D. bigibbum* (unspecified) as a parent. The origins of these parents and all their progeny in resulting hybrid lines are uncertain.

In future hybridising and line breeding with *D. bigibbum*, only the accepted name *D. bigibbum* will be used in registrations and the recording of origins and correct identification of parents will be essential. When past hybrids are used in future breeding, there will be an unavoidable continuation of past uncertainty. It is not possible to determine the subtaxa in line-bred plants by simple observation.

In early editions of *A Checklist of Australian Native Orchid Hybrids* (ANOS Inc., Australia), attempts were made to identify the parents of particular hybrids used in the original registration as follows:

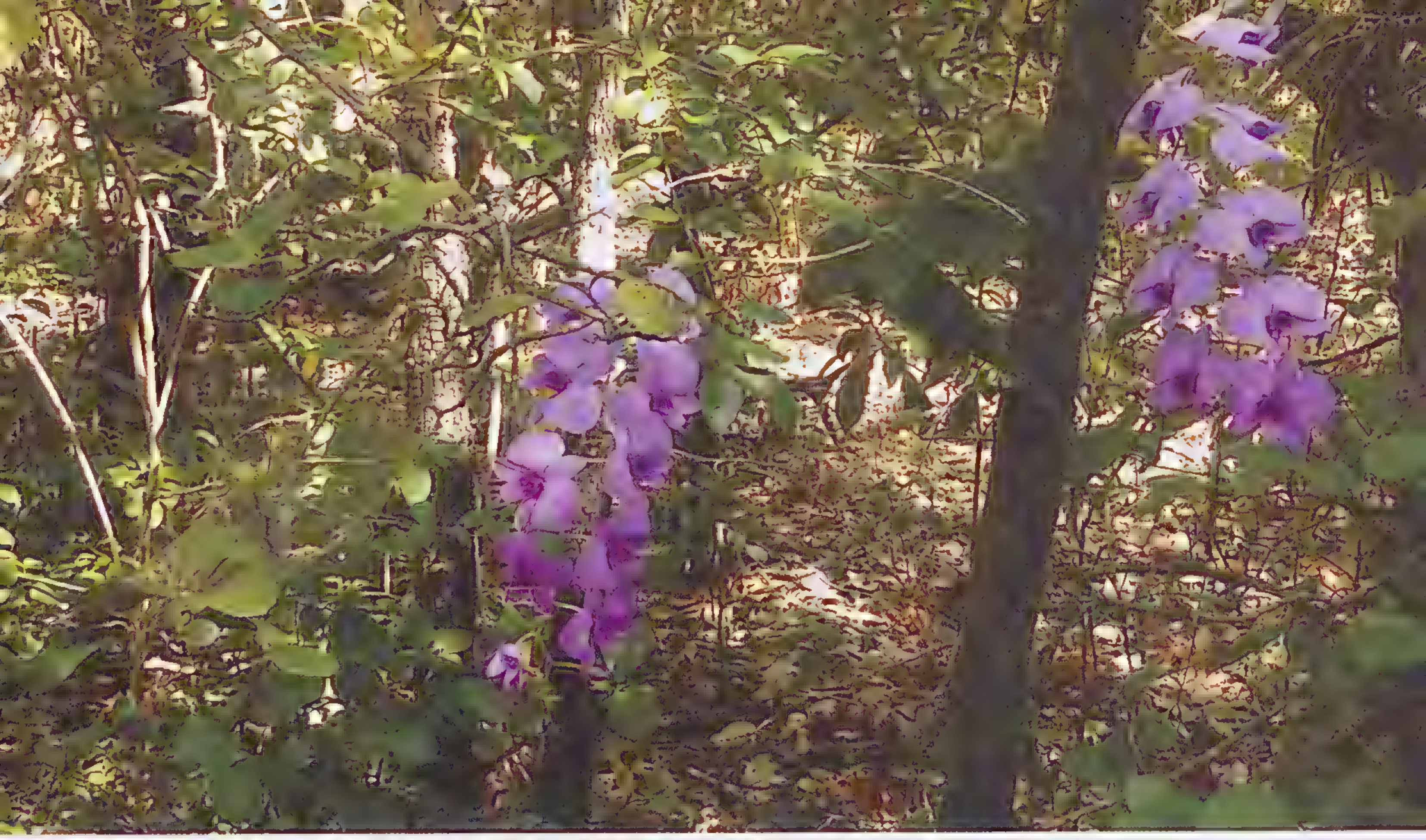
D. bigibbum = *D. bigibbum*
D. bigibbum 1 = *D. phalaenopsis*
D. bigibbum 2 = *D. schroederianum*
D. bigibbum 3 = *D. compactum*
D. bigibbum 4 = man-made combinations of any of the above.

This system was based on Clemesha's classification (1978) in *The Orchadian* using four taxonomic ranks – species, subspecies, variety and subvariety.

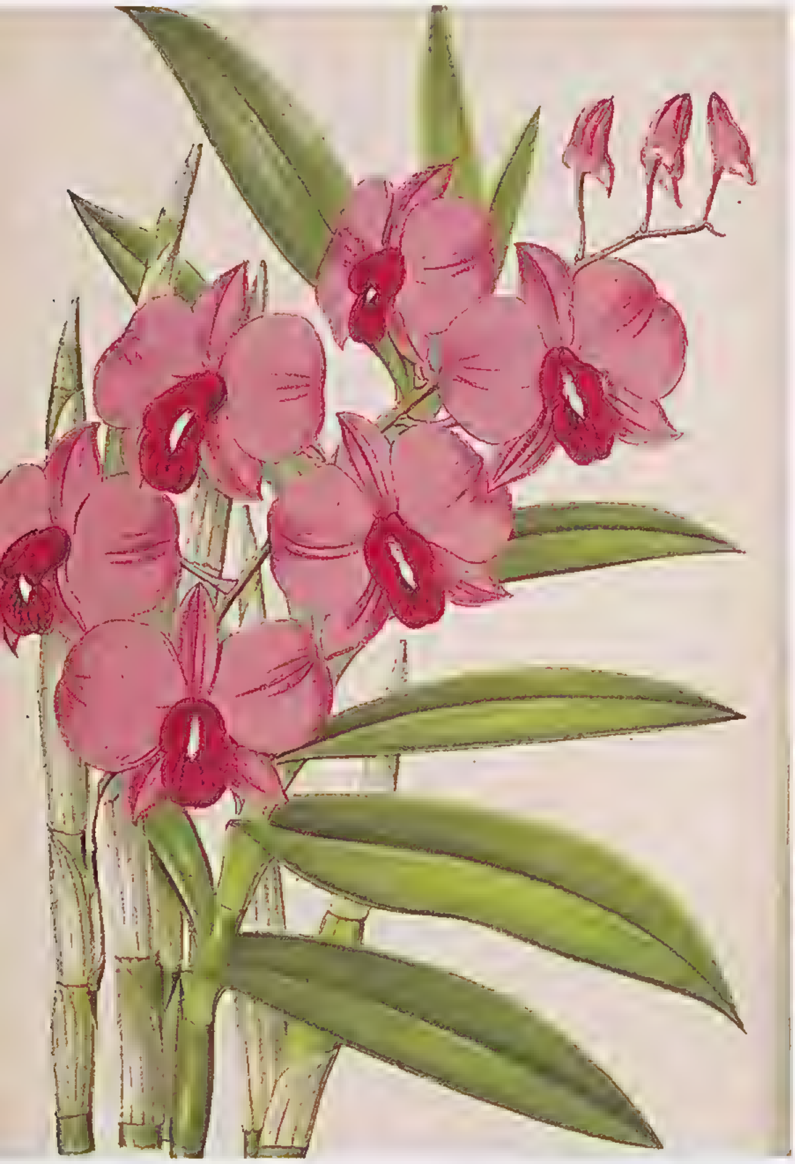
Analysis of hybrids in the 9th edition of the checklist to December 2010 indicated a total of 59 hybrids where *D. bigibbum* was used as a parent, 32 with uncertainty as *D. bigibbum*, 17 as *D. phalaenopsis*, five as *D. schroederianum*, none as *D. compactum*, and five as man-made combinations.

The 32 attributed to *D. bigibbum* are unlikely to be var. *bigibbum,* and most registrations are likely to have used the name *D. bigibbum* as a category for unspecified taxa. This was confirmed recently at my request by Julian Shaw. *Dendrobium phalaenopsis* and *D. schroederianum* have been confused for more than 100 years, so the parentage of these hybrids and those made with combinations is uncertain. It is not possible to identify the parents used in listing with any certainty due to poor recording of provenance, and much past confusion of taxa. Accurate recording of location of origin in wild collected plants is required in future to use such a system for hybrids and line breeding. At shows and meetings provenance is usually uncertain, and a single class for *D. bigibbum* is the best option.

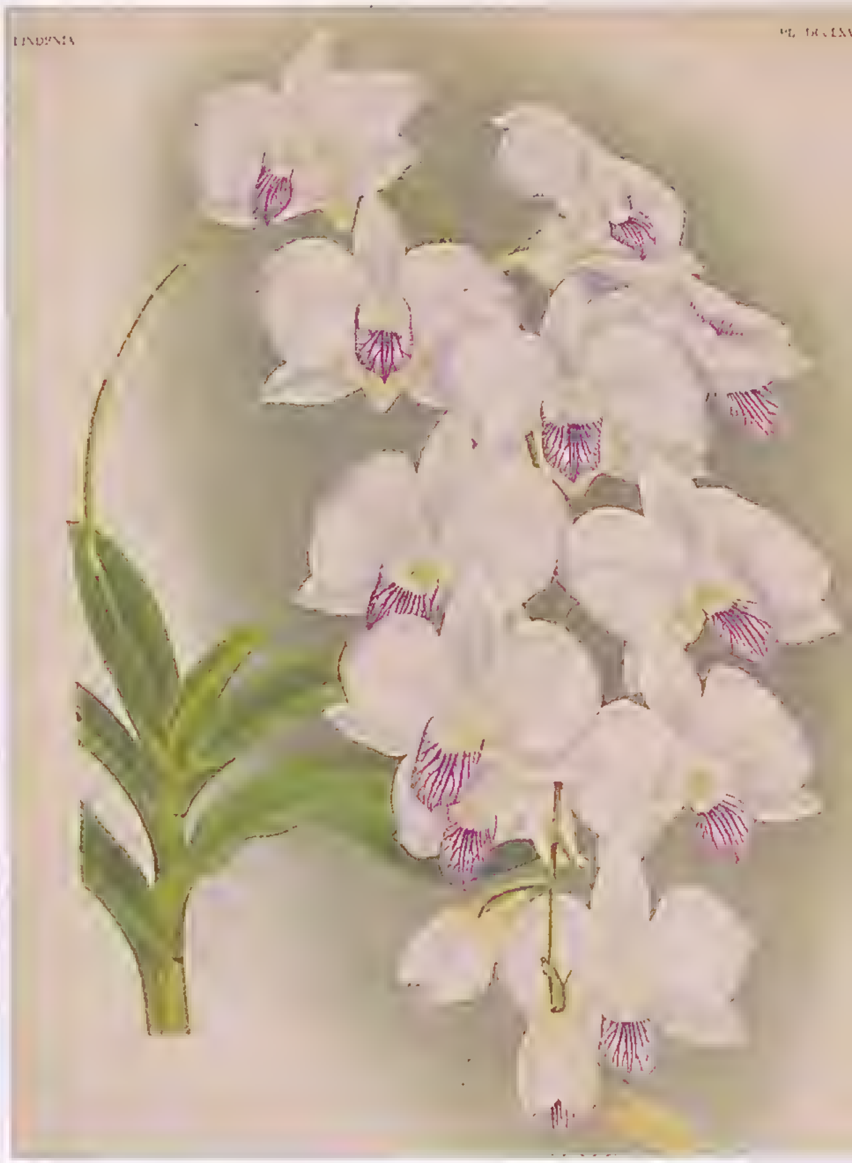
There is also the possibility that *D. bigibbum* exhibits can contain other species as highlighted by John Mewburn (1995) in his discussion of 'bodgie bigibbums'. *Dendrobium bigibbum* hybrids can be classified for judging on the basis of colour, or of other *Dendrobium* sections involved in the cross e.g. *D. bigibbum* x *Dendrobium* sect. *Spatulata*, also known as 'Intermediate' hybrids.



Dendrobium bigibbum var. *superbum* Edward River in vine thicket. Photo S. Lawson



Dendrobium bigibbum Lindl. *L'illustration horticole* vol. 30t. 476 (1883). P. Stroobant.



Dendrobium bigibbum var. *schroederianum* (illustrated as *D. phalaenopsis* Fitzg. var. Lindeniae). Lindenia, *Iconographie des orchidees* (E. von Lindemann) vol. 16 t.768. C. de Bruyne.

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Thanks to Dr. Pina Milne and staff at the National Herbarium Melbourne who assisted with importation and lodgement of a type specimen of *D. bigibbum* var. *schroederianum*. The Royal Botanic Gardens Kew and National History Museum London supplied photographs of type specimens. Ernst Vitek of Vienna supplied photographs of a Reichenbach f. type specimen.

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Growing *Dendrobium bigibbum* and its Hybrids in New South Wales

Callyn Farrell
dunoau@gmail.com

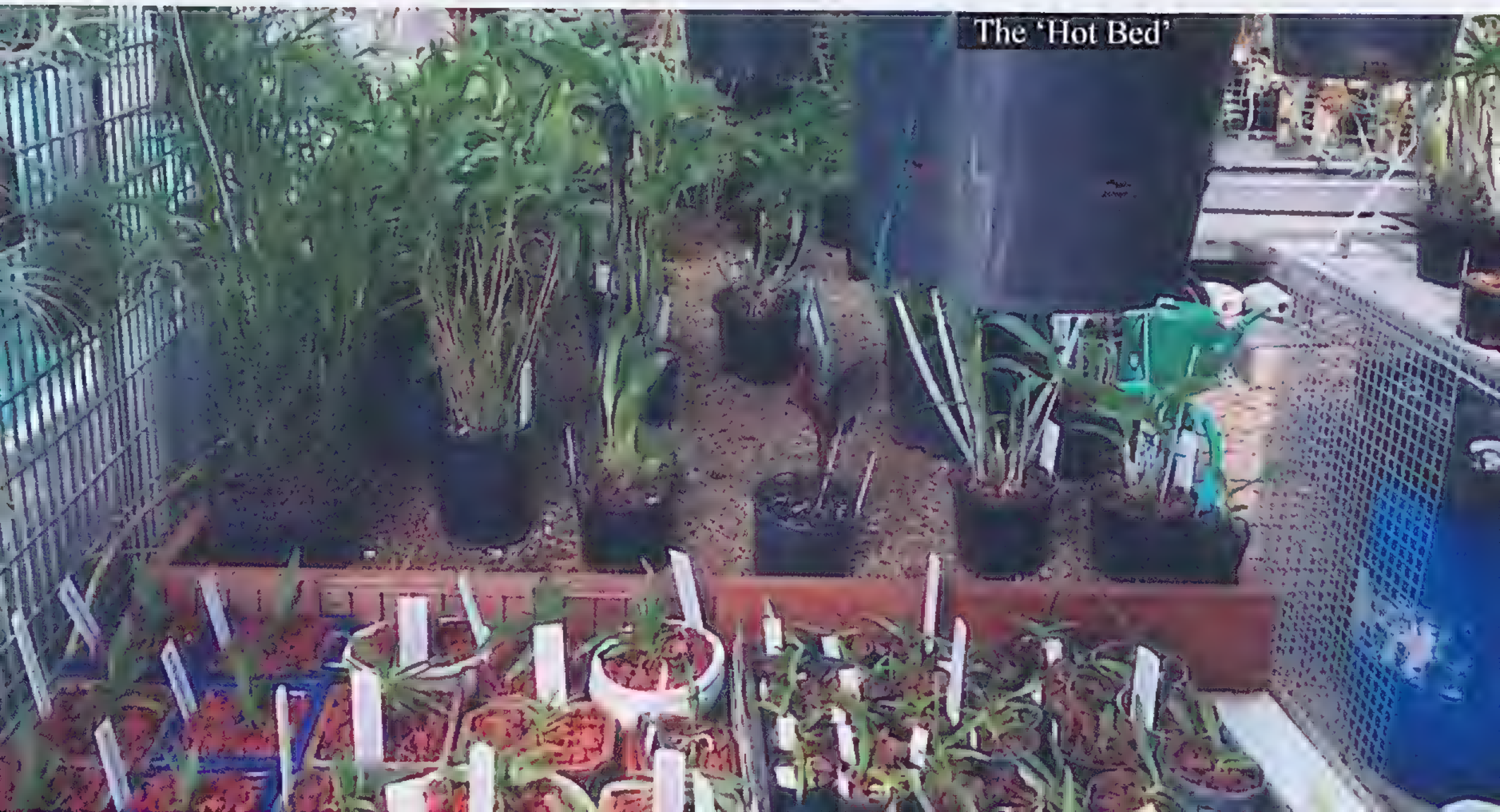
Dendrobium bigibbum 'Liam' HCC/AOC-ANOS 2018

Dendrobium Phena's Charm 'Genesis'

Dendrobium biggibum can be challenging to grow in the southern states of Australia. If you had asked several years ago if we could grow this species or its hybrids to acceptable exhibition level, the answer would have simply been no. However, in recent years we have made some discoveries about how to grow these plants quite well.

Firstly we changed our potting media nursery-wide from 70% pine bark, 15% river gravel and 15% coarse perlite, to 80% pine bark and 20% 10mm scoria. This media drained faster and this subsequently aided in superior root growth. As a result, new growths the following season were visibly more robust. Watering has been dramatically reduced in the cooler months. This not only maintains root quality but probably assists in better flowering. Previously we had grown these plants in an enclosed hot house, at a constant temperature of 18° C. We invested in a heat mat from our local electrical supplier, and covered this with river sand to encourage a high level of consistent humidity throughout all seasons. The thermostat is currently set at 15° C, and a small fan runs all year round for constant air movement. The growing area itself is covered in horticultural solarweave, and has an attachable layer of 70% green shade cloth for the summer months.

This year, two *D. bigibbum* flowered to award standard. They are *D. bigibbum* 'Venus' AM/AOC-HCC/ANOS 2018 and *D. bigibbum* 'Liam' HCC/AOC-ANOS 2018. Both of these plants were bred



The 'Hot Bed'

by Don Cruickshanks and purchased as seedlings. *Dendrobium bigibbum* 'Venus' is *D. bigibbum* 'Ronander' x 'Sunset,' while *D. bigibbum* 'Liam' is *D. bigibbum* 'Phil' x ('Greta' x 'Stella'). These plants are the first ANOS quality awards for the species since 2010. Both plants have quality flowers, however what is most exciting is the quality of culture.

These cultural changes have also had positive impacts on hybrids containing *Dendrobium bigibbum* as one parent. Two standouts this season were *D.* Phena's Charm 'Genesis' (*D.* Brinawa Charm 'Lucky's Toy' AM/ANOS 1992 x *D. bigibbum* 'Wilko's Best') which is 62.5% *D. bigibbum*, and *D.* Warringah 'Stripes' (*D. bigibbum* 'Wilko's Best' x *D. speciosum* var. *capricornicum* 'Pine Mountain') which is 50% *D. bigibbum*. They were bred by the late Brian Gerhard. Both plants displayed improvements in flower size, shape and colour, but increased flower count was the most pleasing result of all. Unfortunately these plants were not of award quality, as the first was slightly bunched on the inflorescence, and the latter did not last due to inconsistent temperatures.

We have learnt to grow these plants to a higher standard, and the most important point is not to be afraid to change your plant culture and try something new.

Callyn Farrell of Down Under Native Orchids is a hybridist and grower of Australasian orchids.

Dendrobium Warringah 'Stripes'

Dendrobium Warringah 'Stripes'

One Day is Enough

Text and Photographs by Trevor Porteous
portefam@optusnet.com.au

I am referring to those 'one day wonders' we never see at orchid society meetings or shows, and half the time you miss them when they do flower. A lot of them are very interesting and sometimes are exceptionally beautiful. Over a recent summer we had some very changeable weather, with periods of extreme heat followed by some cool days, very unsuitable weather for most of our orchid plants, and not a good flowering season in general. The flower quality was also affected, with flowers not lasting, mainly due to the low humidity associated with hot dry weather.

Despite this, I have had a wonderful flowering season with a small elite group of plants – the 'one day wonders'. Apparently this was perfect weather for flower initiation and the flowers lasted and lasted - for one day. These species are not restricted to a single genus, but are in several genera, although most of my plants are *Dendrobium*. My favourites are in *Dendrobium* section *Diplocaulobium*, with some having good sized flowers with spectacular colours. I don't have a huge collection in this special group, but I will highlight those I have flowered recently.

Dendrobium

Dendrobium crumenatum Sw.

The dove orchid is found in collections and grown as garden plants throughout Queensland. It is easy to grow in the sub-tropical climate. Plants have swollen base canes tapering up to 0.5 m or so. It has beautiful singular white flowers along the upper thin section of the canes. It can be very floriferous some days after a sudden change in temperature from an afternoon summer storm. In nature it is widespread from southeast Asia down to Timor and Christmas Island.

Dendrobium comatum (Blume) Lindl.

This is a widely distributed species from the Philippines through New Guinea to Cape York and the Pacific Islands. The plants do get large and tall over time, as they have a habit of producing new growths from the uppermost nodes of the previous growth. They then lie over from their own weight. I find it easy to grow in my hothouse and at present it is about 1 m high. What is most striking about this species is the fringed labellum. The flowers (approx. 3 cm wide) are short lived, and borne on short inflorescences close to the canes.

Dendrobium insigne (Blume) Rchb.f. ex Miq.
(syn. *Grastidium insigne*)

Distribution is from New Guinea, Cape York to the Solomon Islands. The plants have thin canes to 60 cm which do not stay erect for long, and they can look a bit untidy as they gain size. Flowers are 4–5 cm wide, a little clawed, a strong yellow colour with red markings. I grow one in the hothouse and the other in the covered area, and both do well.

Dendrobium aureicolor J.J. Sm.
(syn. *Diplocaulobium aureicolor*)

This New Guinea species forms a tight clump of pseudobulbs so don't need big pots or take up a lot of space. It grows well in my shade house with the larger part of my collection. Plants produce single flowers (approx. 5 cm) from the apex of the canes. The flowers have broad segments and are a most beautiful yellow colour.

Dendrobium centrale J.J.Sm.
(syn. *Diplocaulobium centrale*)

This is another species from New Guinea but from a higher elevation, so it can tolerate cooler temperate conditions. It is similar to *D. aureicolor* in most respects except that the flowers are a beautiful crystalline white, which is very elegant.

Dendrobium regale Schltr.
(syn. *Diplocaulobium regale*)

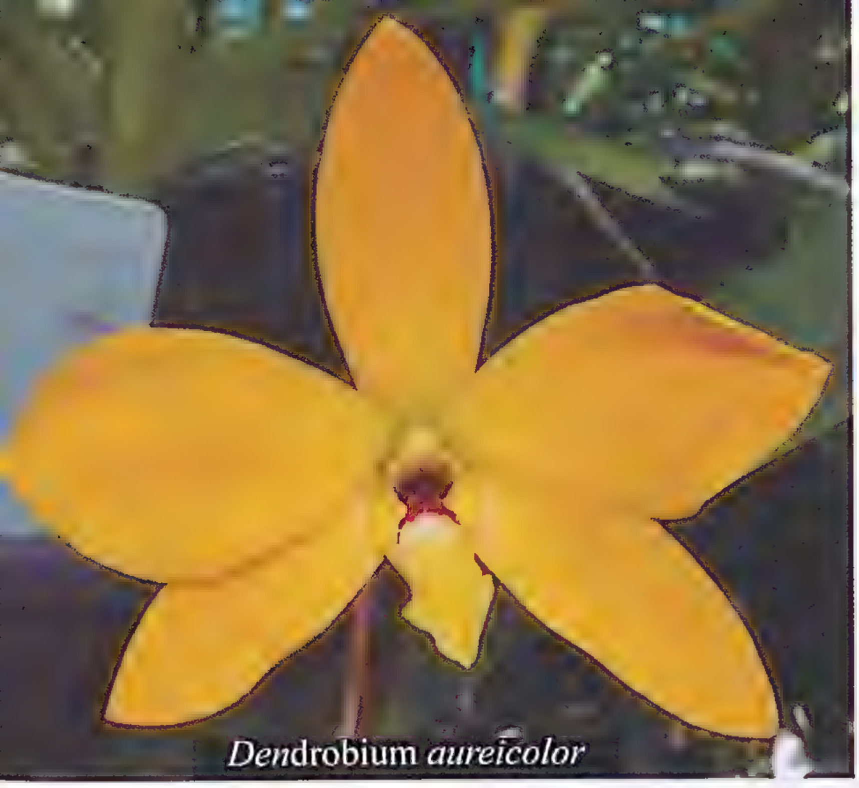
An outstanding species found in New Guinea at a similar elevation to *D. centrale*. This is the third species of what I consider the best of this section. Flowers are a little larger than the other two (to 8cm) with a wonderful warm pink colour. It doesn't get any better than this.

Dendrobium glabrum J.J.Sm.
(syn. *Diplocaulobium glabrum*)

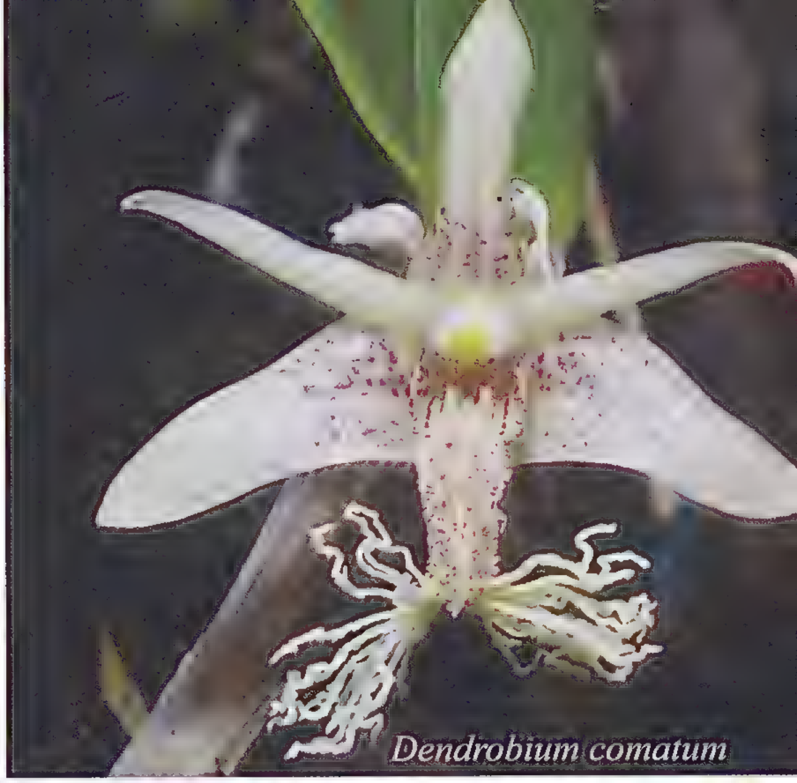
A species found from Mossman, Queensland northwards into New Guinea. Plants have a creeping habit with the growths about 5 cm tall. Flowers are relatively large for the plant size, up to 3 cm wide, starry in shape, and light green-white in colour. It can be easily cultured on mounts and has numerous flowers at a time.

Dendrobium baileyi F.Muell.
(syn. *Grastidium baileyi*)

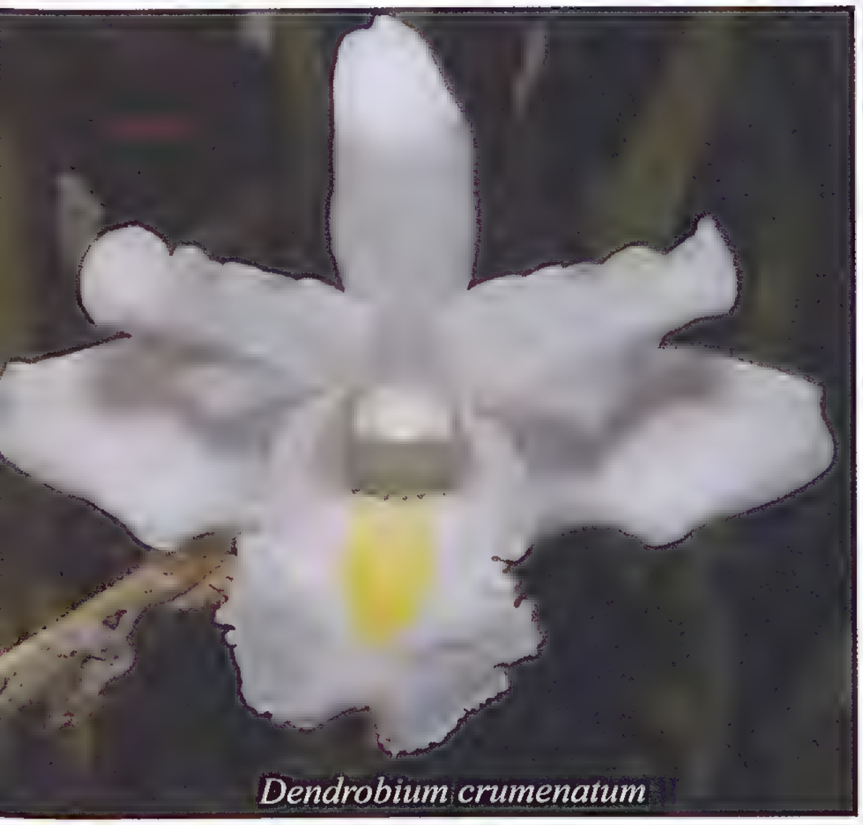
We saw several plants of this on our trip to



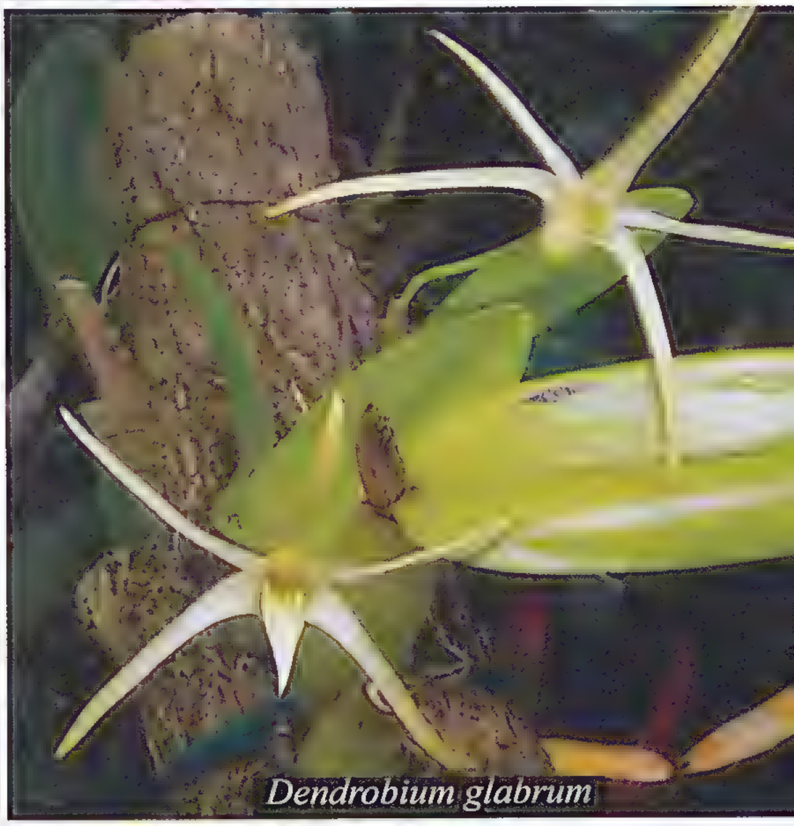
Dendrobium aureicolor



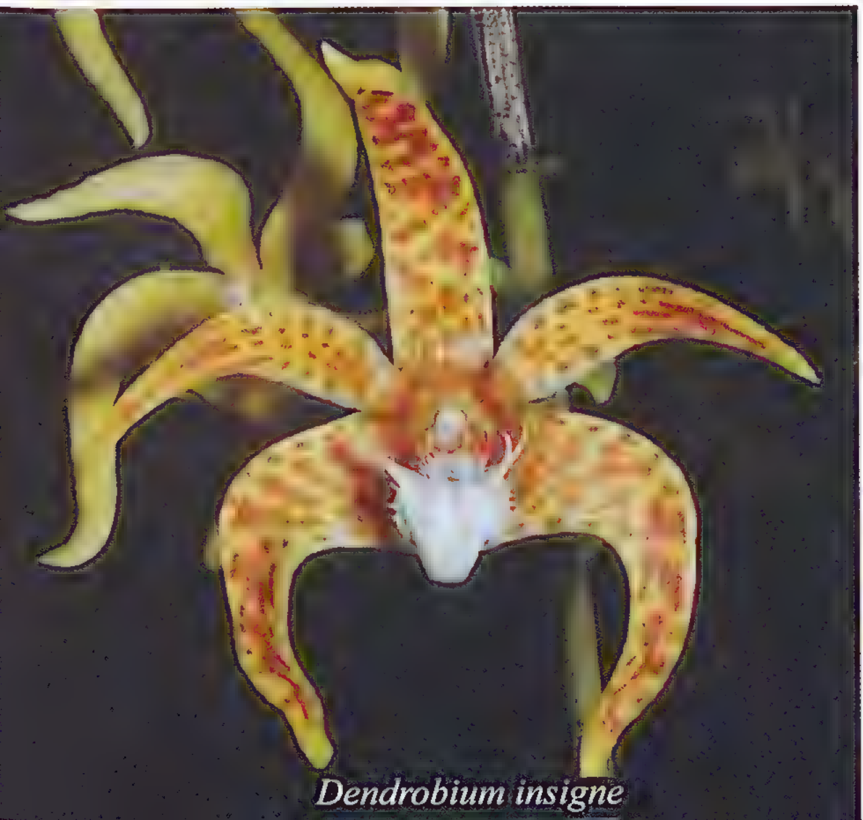
Dendrobium comatum



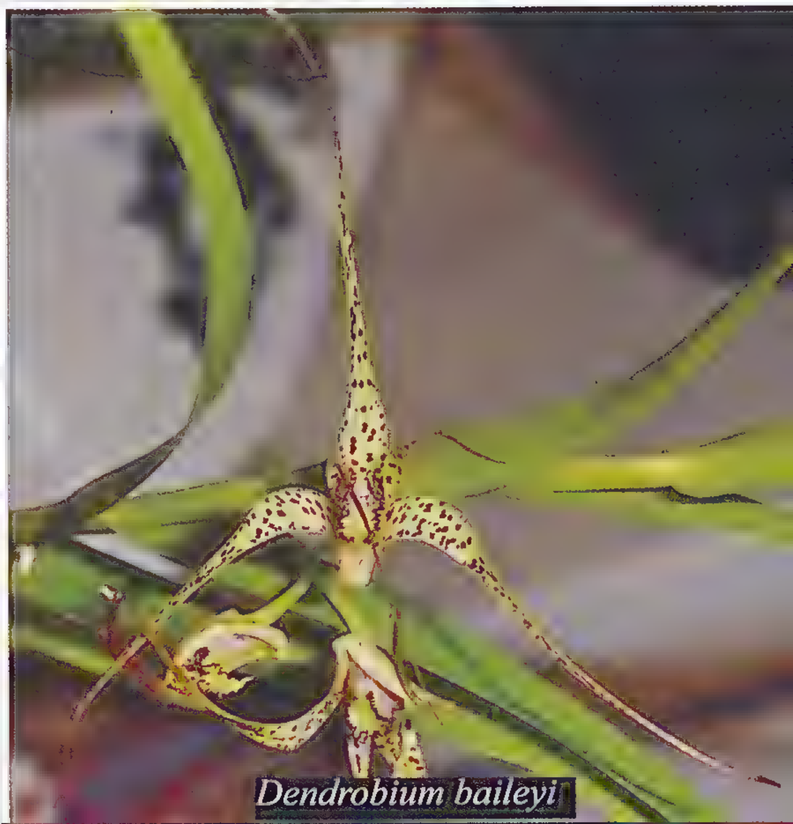
Dendrobium crumenatum



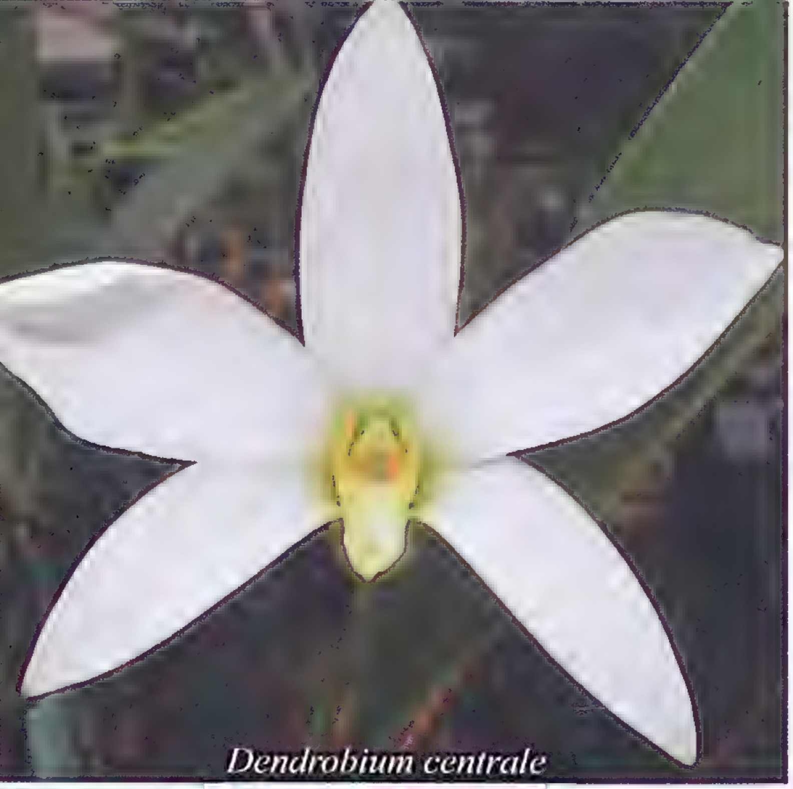
Dendrobium glabrum

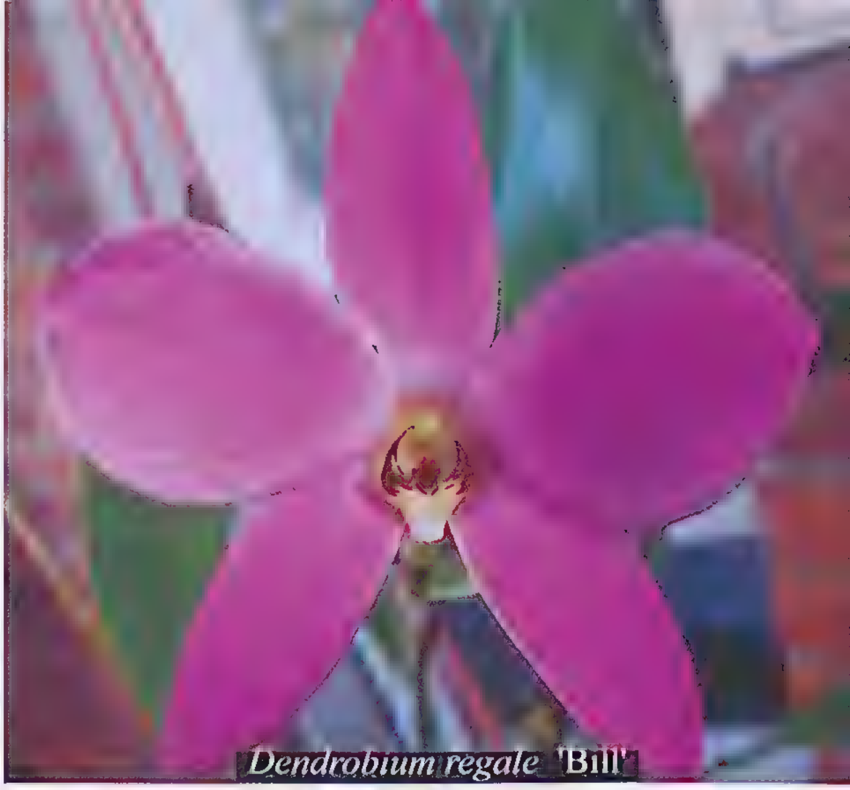


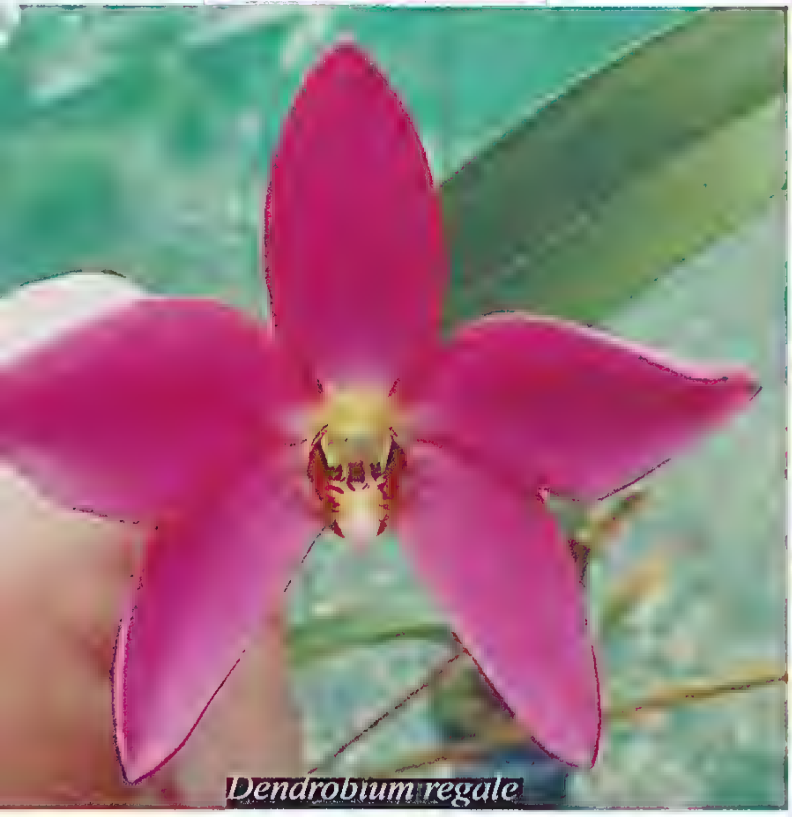
Dendrobium insigne

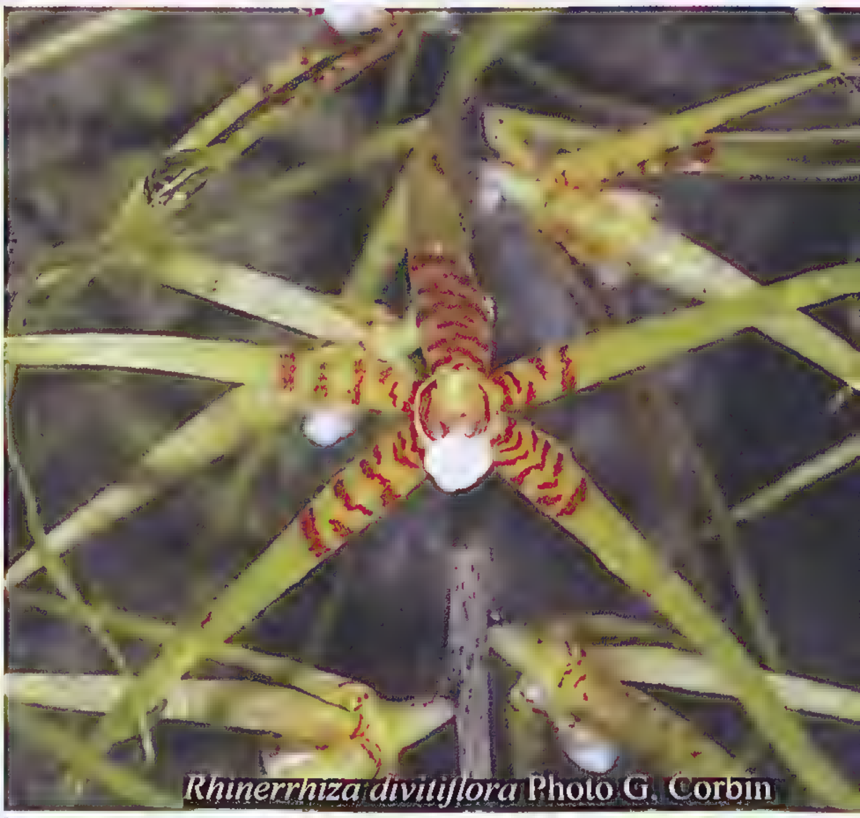


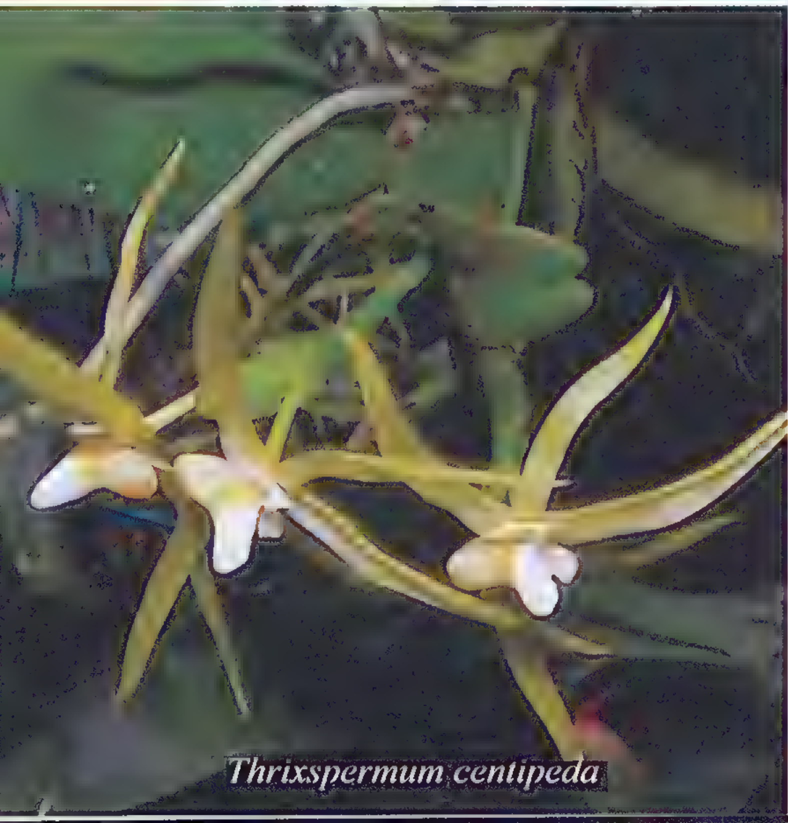
Dendrobium baileyi

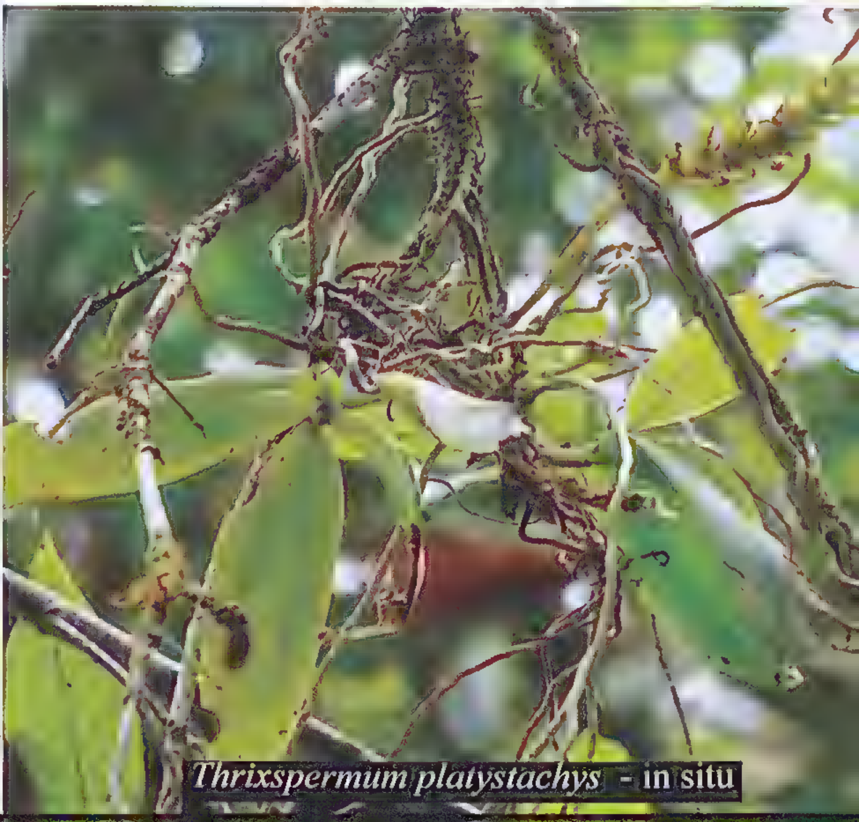

Dendrobium centrale


Dendrobium regale 'Bill'


Dendrobium regale


Rhinerrhiza divitiflora Photo G. Corbin


Thrixspermum centipeda


Thrixspermum platystachys - in situ

Cooktown in 2015, especially along the creek lines at Babinda Boulders. The plants are grass-like in that the canes (commonly > 50 cm long) are very thin, with leaves in pairs on either side. The flowers are up to 5 cm wide and the shape is similar to *D. tetragonum*. They do not open for long, but remain on the plant for some days. Most of the time you see the flowers at this later stage, so they tend not to look very interesting. I have lost my plant as I could not maintain the warm conditions and regular watering (possibly daily) requirement.

Thrixspermum

There are several species in this genus which are in the ANOS geographical area, with three species found in Australia or its territories. Most of the flowers in this genus are short lived, however the racemes produce flowers sporadically over a few years.

Thrixspermum platystachys (F.M.Bail.) Schltr.

This has monopodial growth, and is distributed from New Guinea, North Queensland to the Solomon Islands. We were fortunate to see this in flower on small bushes along the river edge in Mossman Gorge in 2015. Plants are not large (about 20cm tall), growing in clumps and hanging by a few roots, with the rest of the roots just exposed to the surrounds. What is a little unusual is that the racemes have a flattened apex where the flowers are produced singularly from each side. Each raceme can produce 2–3 off-white to greenish flowers which open wide for a few hours, are starry when fully opened and are approximately 3–4 cm in natural spread.

I don't have this species but I do have *Thrixspermum centipeda* Lour., which is very similar in many ways, possibility a little more attractive, but is outside the ANOS region, from further north into South-East Asia. Plants are said to be easy to grow on slabs. My plant grows on the side of a small plastic basket containing bark mix and hangs under the hanging vandas, so receives filtered light and a little more humidity.

Rhinerrhiza divitiflora (F.Muell. ex Benth.) Rupp

Known as the raspy-root orchid, this is a well-known monotypic Australian species. The distribution is from Atherton Tablelands in Queensland, down the east coast to the Hunter River in New South Wales. It has a monopodial growth, and is found on trees in a variety of habitats, from rainforest to open forests along gullies and creeks. This gives an indication that it is fairly easy to grow on slab mounts in the bush house around the Brisbane area, but I still have the occasional loss, mainly from rot. It likes conditions that are a little dry but with good humidity and air movement. It is worth persevering with, as the long raceme (approx. 30 cm) of gold flowers with red blotches is very striking, and certainly has a 'wow' factor if you are lucky enough to get the entire raceme out on the same day. Most times some flowers open one day and another lot the next. Flowers are about 5 cm wide and have thin segments with a spidery appearance when fully open.

The species included in my article are only a sample. Just because they are not often seen at meetings and shows does not mean they are not rewarding. In fact it is probably the opposite, in that their short flowering time is exciting when their day comes to show off.

Trevor Porteous is an experienced Queensland grower and ANOS judge.

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Dendrobium Hybrids Between Sections *Dendrocoryne* and *Spatulata*

Text and photographs by Roslyn Capell
capell666@ozemail.com.au

Introduction

Hot/cold breeding has come to mean cool-growing hybrids produced from crossing section *Dendrocoryne* species and hybrids with *Dendrobium bigibbum*, but in the early years breeders were also using other warm-growing species. From the late 1960s to the 1990s a number of inter-sectional hybrids were made between plants from the *Dendrobium* sections *Dendrocoryne* and *Spatulata*; some also included *Phalaenanthe* species. However, breeders concentrated on producing hybrids between *Dendrocoryne* dendrobiums and *D. bigibbum* when that line proved to be successful and extremely popular, and hot/cold hybridising using *Spatulata* species fell by the wayside. Not only did this line of hybridising stagnate, but few plants from the many combinations made back then seem to have survived and prospered. The notable exception is *Dendrobium* Our Native (*D. speciosum* x *D. johannis*), originated by Kevin McFarlane and registered in 1977. That cross was remade by others more than once, and is quite common in suitable climates. So is *D.* Native Gold (*D. trilamellatum* x *D. speciosum*), which was originated by D. Loch and registered in 1989. It is very similar to *D.* Our Native.

Dendrobium Berry *(D. kingianum* x *D.* Mini Pearl) is another example. It is 50% *D. kingianum* and 25% each *D. bigibbum* and *D. canaliculatum.* This cross was made and registered in Japan where it continues to be very popular, and it seems to also be widely grown in Europe and the USA, particularly *D.* Berry 'Oda'. It is still occasionally used in breeding here and the progeny resulting from crosses with *D. speciosum* are met on the showbench now and then. These plants lack some of the distinctive features of the other hot/cold hybrids involving *Spatulata* species, and they have distinctive features of their own, so are best left for a separate article.

I was very impressed by a mature plant of *D.* Our Native at the St Ives Orchid Fair in 2000, and that plant influenced me to choose this line of inter-sectional breeding as the topic for my paper for the ANOS judging course in 2003. Part of the search involved writing to the people who had made these crosses, and all replies provided helpful information about the breeder's objectives, and their thoughts about the success to date and future prospects for this line of breeding.

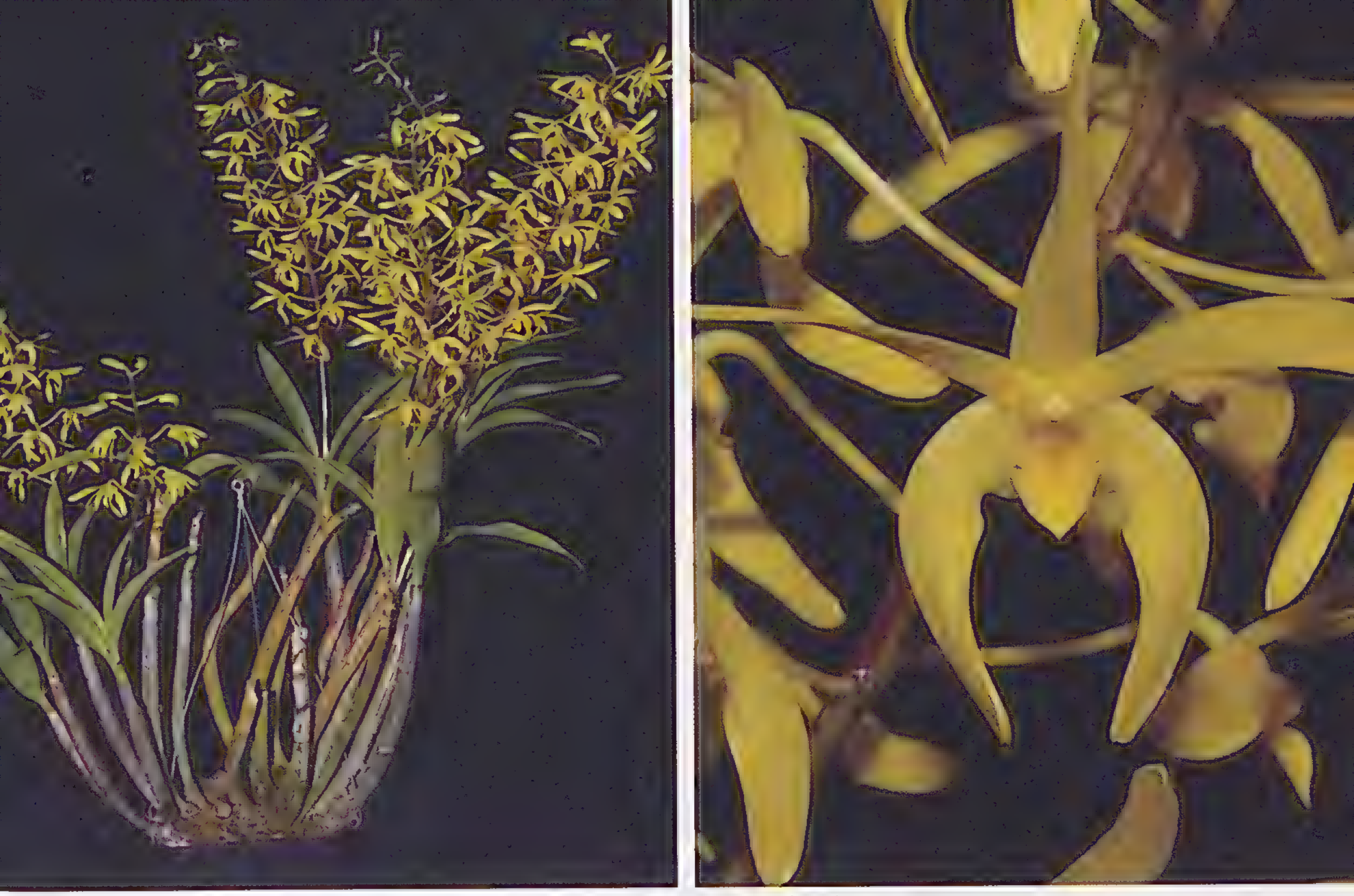
A lot more of the *Dendrocoryne/Spatulata* crosses were made than were registered, but several were registered and are occasionally seen on the showbench. I keep a lookout for them and am always pleased to find one of the unregistered ones. The ANOS Kabi Group meetings and Spring Show can be a rewarding place to look for them. But I do think the stars of this type of breeding – so far, at least – are the yellow flowering hybrids which have *D. speciosum* as one parent: *D.* Our Native, *D.* Native Gold, and *D.* Golden King.

The Stars

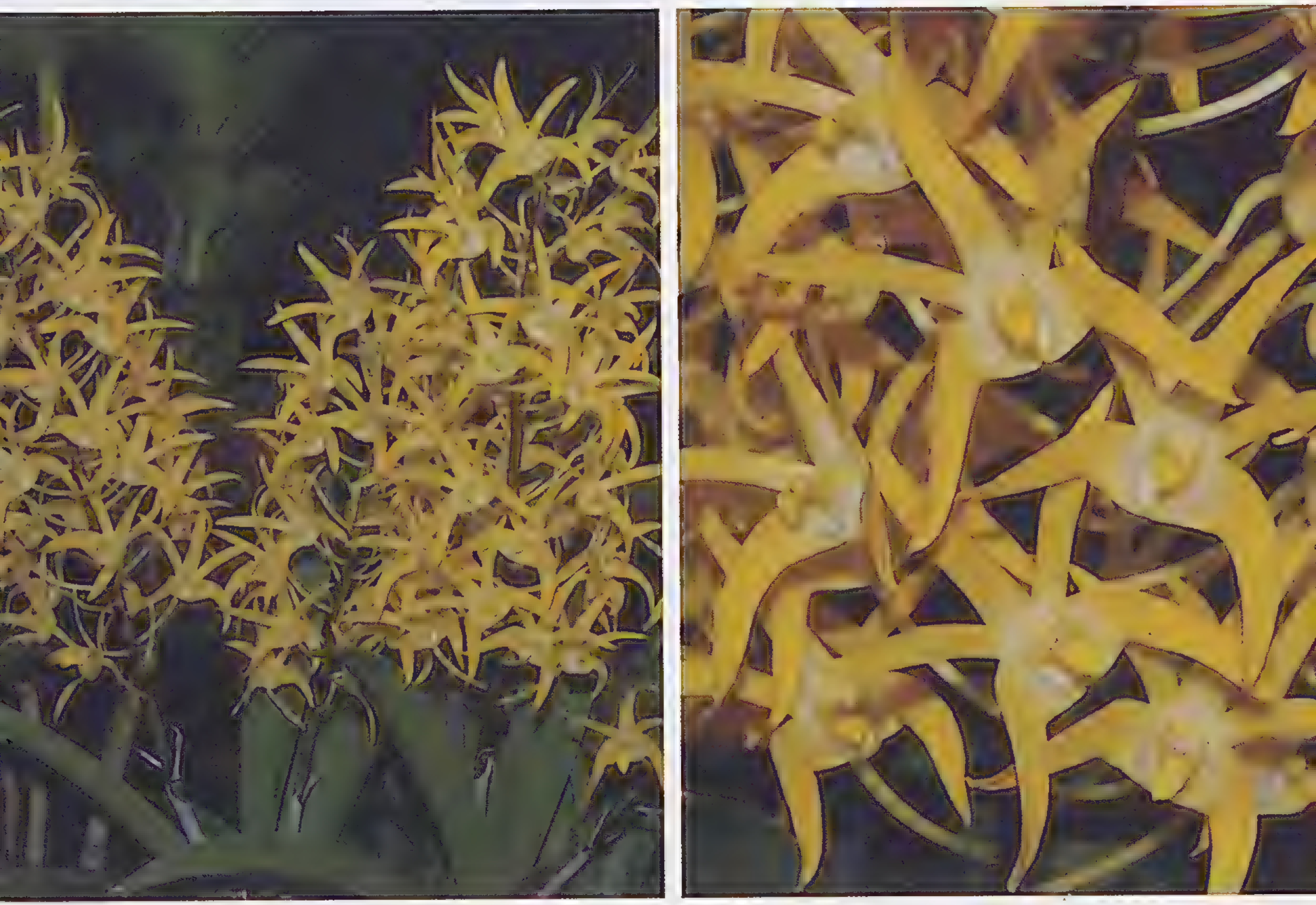
ANOS has given three quality awards to inter-sectional *Spatulata* x *Dendrocoryne* hybrids. Two of them were to plants of *D.* Our Native, owned and grown by Newcastle grower, Fred Fear. *Dendrobium* Our Native 'Golden Glory' received an Award of Merit for Fred at the ANOS Newcastle Spring Show in 2003. That plant was from Ken Russell's remake of the hybrid. Fred's plant of *D.* Our Native 'Pacific Glory' received an HCC at the 5th ANOS Conference at Campbelltown the following year. Then in September 2017, the Northern Regional ANOS judging panel gave an HCC to *D.* Native Gold 'Deanne Robyn' owned by Kevin Foster. This plant was from a remake made by Ken Unsworth in 1998. The parents were *D. speciosum* var. *curvicaule* 'Bob' and a large-flowered *D. trilamellatum.*

The only *Dendrocoryne* x *Spatulata* hybrids that the Australian Orchid Council has awarded have been two plants of *D.* Our Native. The first was an AM given to Lynn Grubb's plant of *D.* Our Native 'Sunshine Coast' in 1989. This plant was one of the seedlings from the original cross made by Kevin McFarlane in 1970. The other award was an HCC to D. & K. Wanka's plant of *D.* Our Native 'Rothwell Gold' in 2001.

In an article in *The Australian Orchid Review* in September 1981, Kevin McFarlane wrote about his success with *D.* Australian Beauty, which he had made in 1973. He had sent a plant to Sydney for the OSNSW Winter Show and it received an award: *D.* Australian Beauty 'Magnificent' HCC/AOC-NSW 1981. *Dendrobium* Australian Beauty is *D. speciosum* x *D.* Meadie. It includes 6.3% *D. taurinum* so is not an Australasian native hybrid, but Mr McFarlane's observation that the use of *D. speciosum* had led to increased floriferousness



Dendrobium Native Gold 'Deanne Robyn' HCC/ANOS 2017



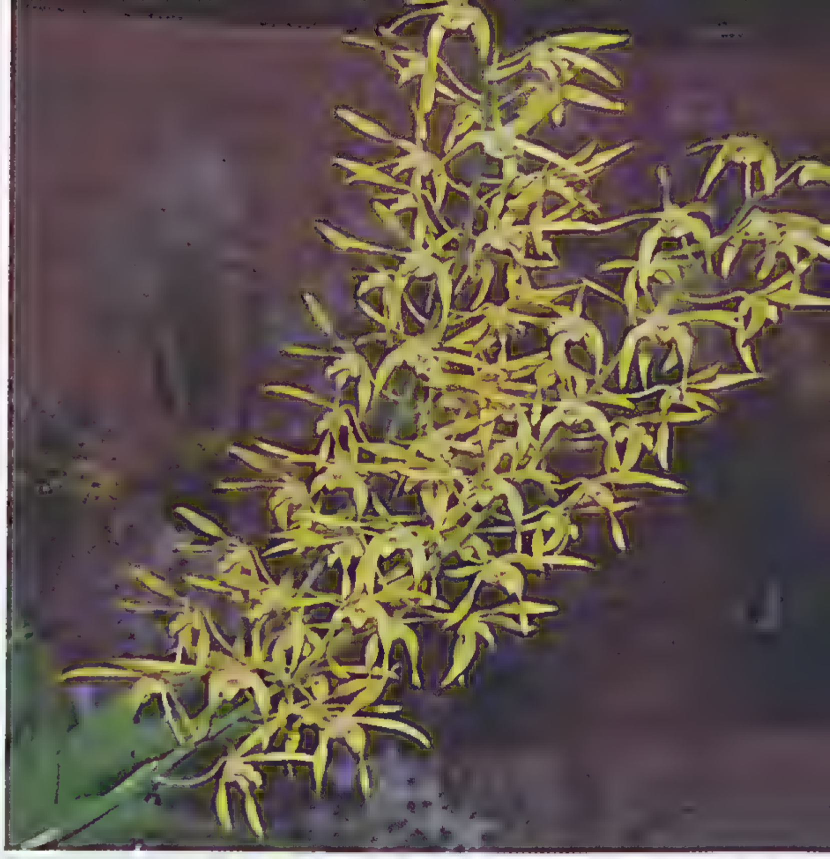
Dendrobium Golden King 'Tumbi

is equally relevant to ANOS-eligible hybrids. He said he was surprised hybridisers had not crossed *Dendrobium speciosum* with other hard cane species, as he thought *D. speciosum* would increase flower count, which would be an advantage when crossed with less floriferous but desirable plants.

That article included an account of *D.* Our Native. Mr McFarlane had seen a plant of *D. speciosum* at a spring show in Brisbane in 1970. It was a large plant with long inflorescences of good cream to butter yellow, with open type blooms, each flower 60 mm long. After the show the owner sent him an inflorescence, and he used the pollen for numerous crosses, but only succeeded with *D. johannis* and *D. tangerinum.* The cross with *D. johannis* was registered as *D.* Our Native.

My inspiration for this article was a plant of *D.* Golden King 'Tumbi', which was benched by Brian and Phena Gerhard at the ANOS Conference at Brisbane in 2013. I came across my photos recently when selecting images for a presentation, and they made me stop and wonder why this sort of breeding has not been pursued in recent years, and also why this style of flower is rarely awarded. The plant was growing strongly and doing everything it could be doing, bearing in mind its parentage. It was compact and very floriferous, and the flowers were well presented. They were a good strong yellow colour and of a well-balanced and pleasing shape, and very attractive. *Dendrobium* Golden King is *D.* Dusky Girl x *D. speciosum*. *Dendrobium* Dusky Girl is *D.* Judy Leroy x *D. canaliculatum*, so *D.* Golden King has in its breeding background 50% *D. speciosum*, 37.5% *D. canaliculatum* and 12.5% *D. dicuphum*. It and two other hybrids of this type were registered by Southern Cross orchids.

I had written to Southern Cross Orchids for the judging class project back in 2003, and in his reply Doug Moss wrote that of the three crosses they registered, *D.* Golden King was by far the most exciting to flower. Having seen one now, I understand why he felt that way. He wrote that the *D. speciosum* used in making *D.* Golden King was *D. speciosum* var. *capricornicum* 'Southern Cross', which ensured an upright inflorescence for most of the seedlings. *Dendrobium* Dusky Girl influenced the shape of the leaves and of the pseudobulbs, which were half the thickness of those of the *D. speciosum*.



Dendrobium Our Native 'Sunshine Coast' AM/AOC 198

Breeders' Objectives

A number of the breeders of these intersectional crosses recorded their projects in *The Orchadian* and other orchid magazines over the years, or in papers delivered at orchid conferences, and it is a good thing they did as otherwise this valuable information would eventually be lost. These sources confirm that the southern growers' main objectives in introducing the *Spatulata* species to *Dendrocoryne* species were to produce plants with longer lasting flowers, with the potential to flower at least twice a year, and also to produce cold-tolerant *Spatulata* types. Northern breeders also saw the potential to produce floriferous, warmth-tolerant plants with flowers the shape of the southern kind.

In an article in the *Australian Orchid Review* in

December 1993, Ted Gregory recorded that he specifically set out to produce 'antelope' type orchids that will grow cold and flower at least twice a year. He told me in a letter that he was quite confident that one could produce cool growing 'antelopes' in three generations with the right selection. Wal Upton did a lot of intersectional breeding as recorded in his book, *Dendrobium Orchids of Australia*. In 2003 he told me that he considered the section *Spatulata* species have made a worthwhile contribution to hot/cold *Dendrobium* hybridising but that not enough work has been done with them. He thought that the future held the great possibility that hybrids from the spectacular *Spatulata* species could be cold tolerant.

The Future

Kevin McFarlane wrote to me that he had made no further crosses with *D.* Our Native as he thought they were just fine as they were, and I agreed at the time. *Dendrobium johannis* had already achieved the objective of improving the longevity of blooms, with *D.* Our Native lasting three weeks or longer, and the flowers were good clear colours and a pleasing, unique, shape. However, I was only thinking in terms of crossing it back to *D. speciosum*, and I have changed my mind. I now wonder what would result from crossing *D.* Our Native with *D.* Cosmic Gold. And how about crossing *D. discolor* var. *broomfieldii* with *D.* Midas Touch? Or *D. lasianthera* with *D.* Jesmond Star? We will only know if someone tries. I hope they do.

Roslyn Capell is an ANOS Judge and AOC Judge.

The Rock Lily Man

Your Starting Point For

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SPECIES AND HYBRIDS

Allen-Ikeson, Jean 2011

Published by the American Orchid Society as supplement to Volume 80 of *Orchids – The Bulletin of th AOS*.

This is a handy guide to the cool growing Australia *Sarcochilus*. Descriptions of the species and their uses i hybridising are included along with information on ho to grow *Sarcochilus*.

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Ups and Downs of Aeridinae (Sarcanthinae) Intergeneric Breeding

David Butler
david.greenvista@gmail.com

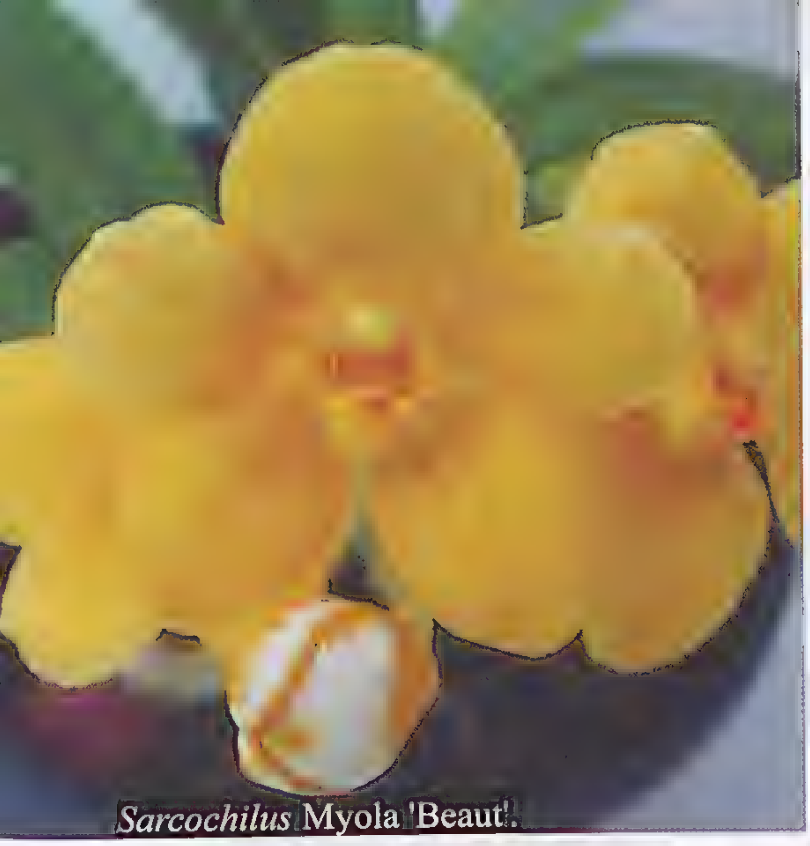
This article was inspired by the untimely departure of *Plectochilus* Harlequin 'Moonlight' HCC/ANOS 2013. Yes, you guessed it, the orchid recently succumbed to what many growers have learnt to accept as SSDS or 'sarc sudden death syndrome'. This is, no doubt, a problem common to many cultivated orchid genera, and is possibly due to the plants' inability to cope in a location far removed from their natural habitat. Whatever the cause and name of the disease I find, along with fellow growers, a particular frustration with the untimely demise of an apparently healthy *Sarcochilus*. The death of a favourite plant is sad but in the case of *Plchs.* Harlequin 'Moonlight', its potential as a parent made this quite an unfortunate loss.

The story starts with the purchase of a few *Plchs.* Richard Jost seedlings some twenty years ago. One grew strongly, was named *Plchs.* Richard Jost 'Pink Flush', and when crossed with *S. hartmannii* 'Ginger Snow' produced *Plchs.* Harlequin 'Moonlight', a strikingly bright, autumn-coloured flower. At first glance pink offspring would have been expected and I can only assume the unusual colouring of 'Moonlight' was derived from firstly, *Plectorrhiza tridentata* and later, *S. hartmannii* 'Ginger Snow' ('Red Snow' x 'Yellow Snow'). Awarded an HCC/ANOS and an Ira Butler Certificate, it always created interest when shown. One of its progeny, *Plchs* Jester 'Sunset', was recently awarded an AD/ANOS, the judges once again being captivated by the bright floral display in the colours of autumn. Now a parent itself, 'Sunset' has produced a few seedlings which will soon be taken out of flask.

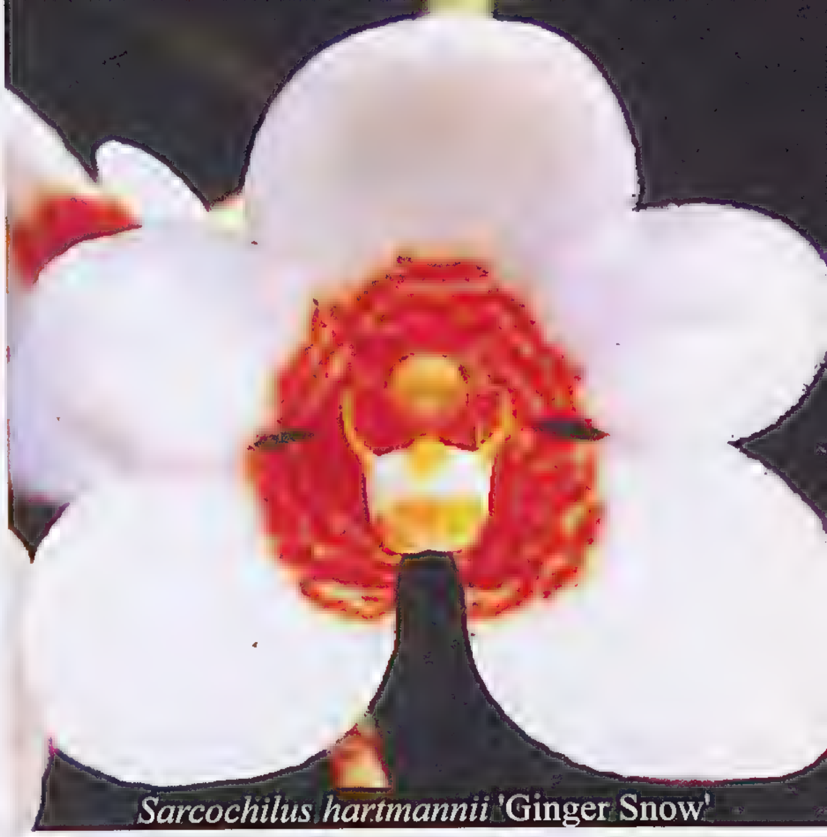
Intergeneric Aeridinae (Sarcanthinae) breeding can be quite unpredictable, and a good outcome is often just a few seedlings. From my experience, if germination is achieved and a pod actually forms, the seed is often confined to the area just behind the flower. However, when the cuteness and beauty of the intergenerics are on display, it is easy to see why breeders stay inspired. Although they grow monopodially, most have the ability to produce new growths from the base of the plant, thereby becoming quite 'shrubby'. Many of the parents used in intergeneric breeding are, however, reluctant to form side growths, and this trait can influence the growth habit of their offspring. A good example of this non-clumping habit is *Plchs.* Harlequin 'Moonlight', which remained as a single growth over the whole of its long life span, and prevented the saving of even a small piece of the plant.

The legacy left behind by *Plchs.* Harlequin 'Moonlight' includes three outstanding hybrids, *Plchs.* Charisma, *Plchs.* Jester and *Plchs.* Merrymaker, which show the potential of this type of breeding.

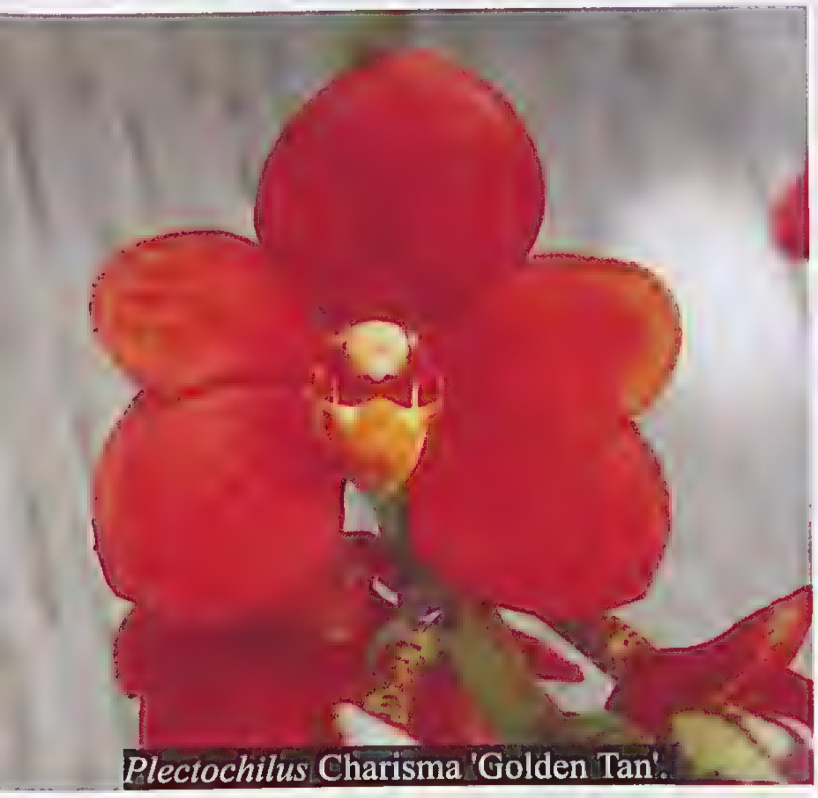
David Butler with *Plectochilus* Harlequin 'Moonlight' HCC/ANOS.



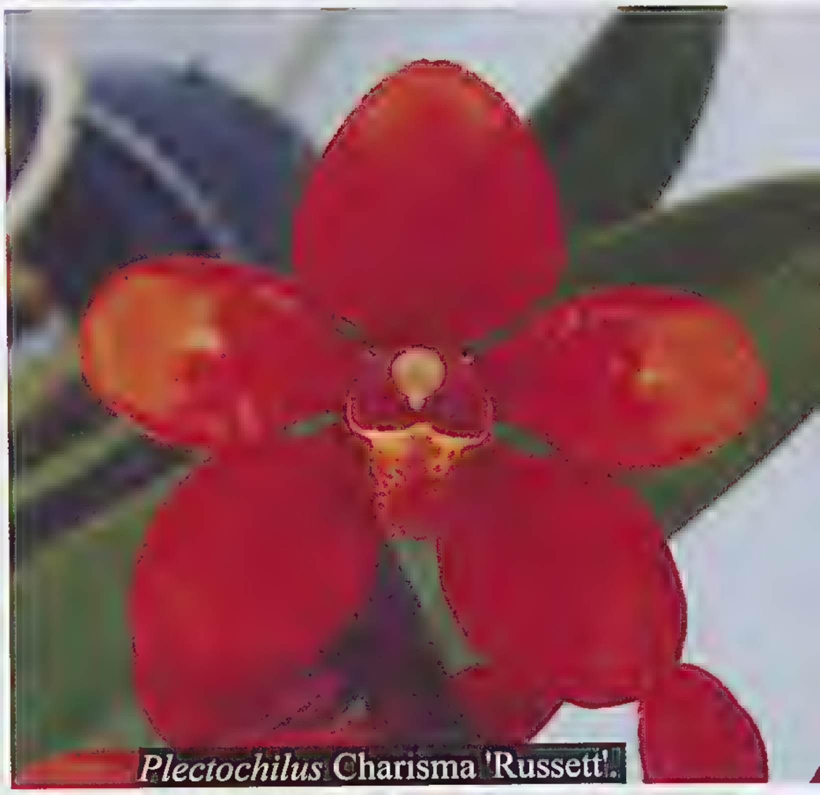
Sarcochilus Myola 'Beaut'.



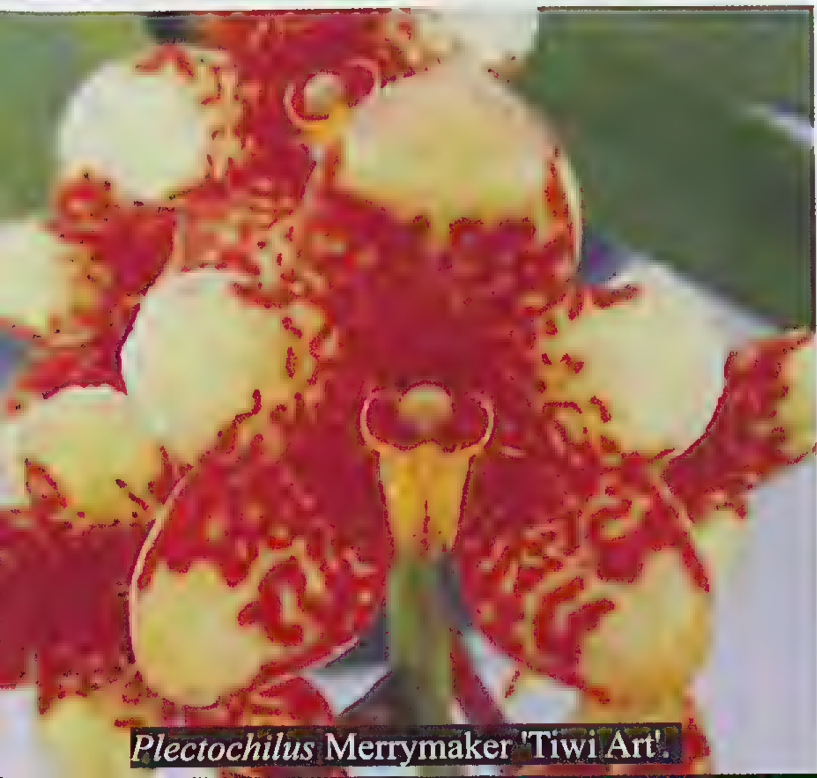
Sarcochilus hartmannii 'Ginger Snow'.



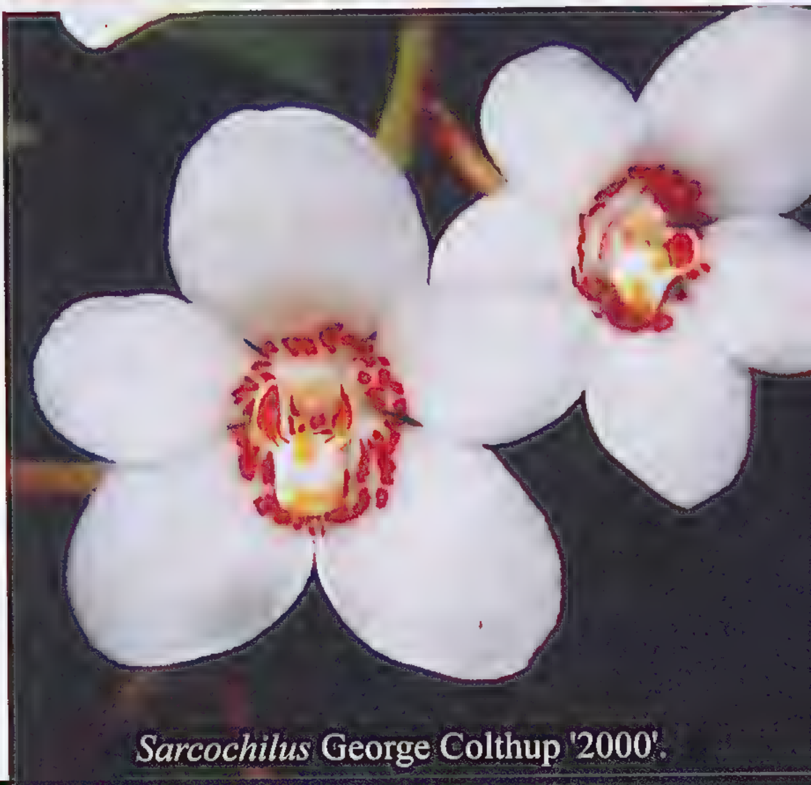
Plectochilus Charisma 'Golden Tan'.



Plectochilus Charisma 'Russett'.



Plectochilus Merrymaker 'Tiwi Art'.



Sarcochilus George Colthup '2000'.

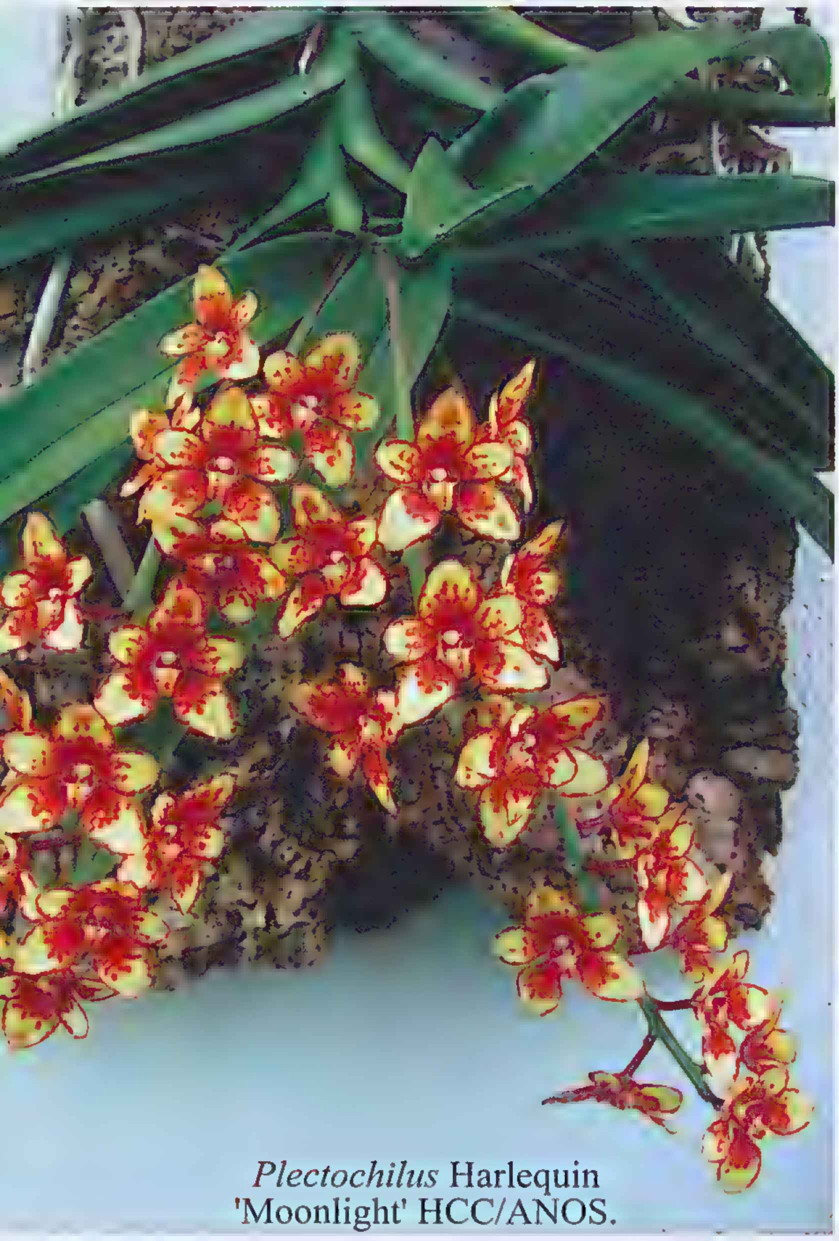
Plectochilus Charisma (*Plchs.* Harlequin 'Moonlight' HCC/ANOS x *S.* Heidi 'Daniel') has produced shapely flowers in burnt-orange and russet shades. Although the colour of each seedling varies, they have so far been in darker shades, without the parent's striking bicolour effect. Two hybrids as yet unflowered, are *Plchs.* Charisma 'Russet x *S. hartmannii* 'Ginger Snow' and *Plchs.* Charisma 'Russet' x *S.* Sunny 'Peachy'.

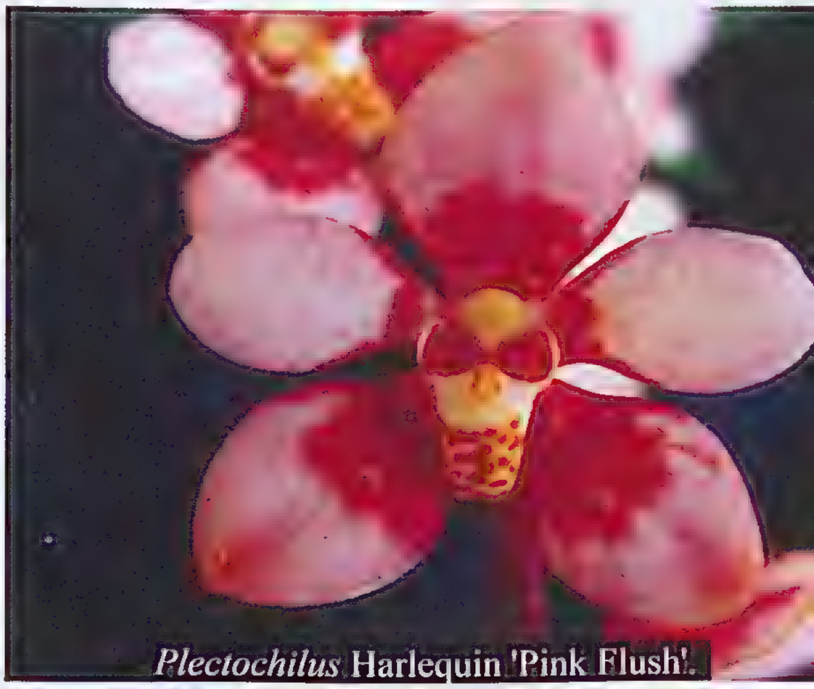
Plectochilus Jester (*Plchs.* Harlequin 'Moonlight' HCC/ANOS x *S. hartmannii* 'Gold Drop') has produced delightful flowers which reflect the brightness and colouring of the parents. As noted, many of the intergenerics remain as single growths, but *Plchs.* Jester 'Sunset' AD/ANOS has produced several side-growths, giving a chance to keep a spare division should the dreaded SSDS decide to pay a visit. It has been a reluctant parent but the cross of *Plchs.* Jester 'Sunset' AD/ANOS x *S.* Nugget 'Beige' has produced a pod and a handful of seedlings.

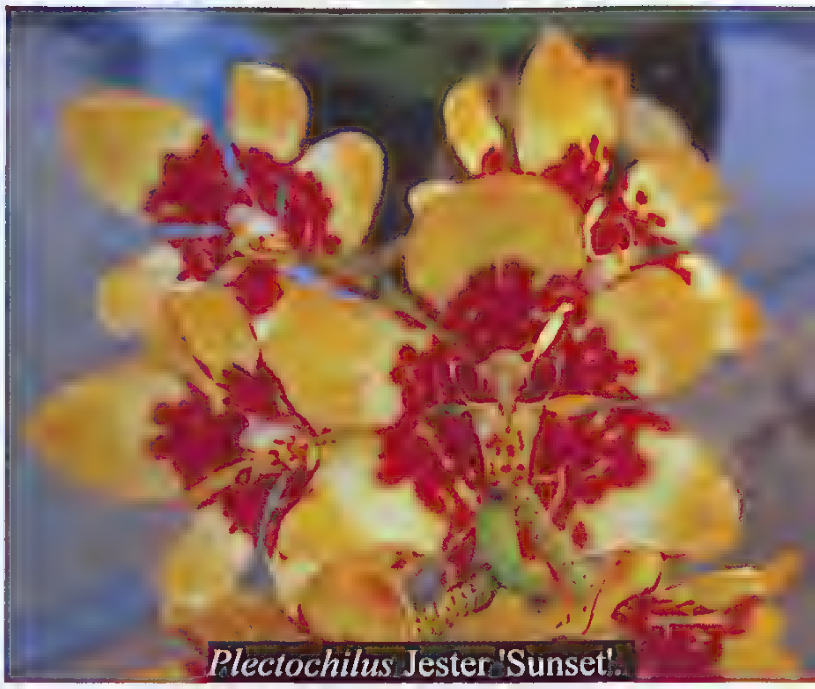
Plectochilus Merrymaker (*Plchs.* Harlequin 'Moonlight' x *S.* George Colthup '2000' AM/ANOS) gave poor germination but one seedling has made the effort well worthwhile. Named *Plchs.* Merrymaker 'Tiwi Art', it has large filled-in flowers with a delightful patterning of burnt orange reminiscent of indigenous art. Unexpected and different, it is these surprises which give the hybridiser the incentive to seek the more unusual, despite there being many failures along the way. The plant has had success as a parent, but to what extent will not be known until the seedlings flower. Crosses in the pipeline are *Plchs.* Merrymaker 'Tiwi Art' x *S. hartmannii* 'Ginger Snow' and *Plchs.* Merrymaker 'Tiwi Art' x *S.* Myola 'Beaut', the former giving quite good germination.

The enjoyment of flowering *Plchs.* Harlequin 'Moonlight' HCC/ANOS is no more, but flowering its progeny, and in turn their offspring, inspires and nurtures our ongoing enthusiasm for Aeridinae.

David is a well known breeder of high quality *Sarcochilus* and allied genera.


Plectochilus Harlequin 'Moonlight' HCC/ANOS.


Plectochilus Harlequin 'Pink Flush'.


Plectochilus Jester 'Sunset'.

Book Review: Native Orchids of Kangaroo Island: A Field Guide

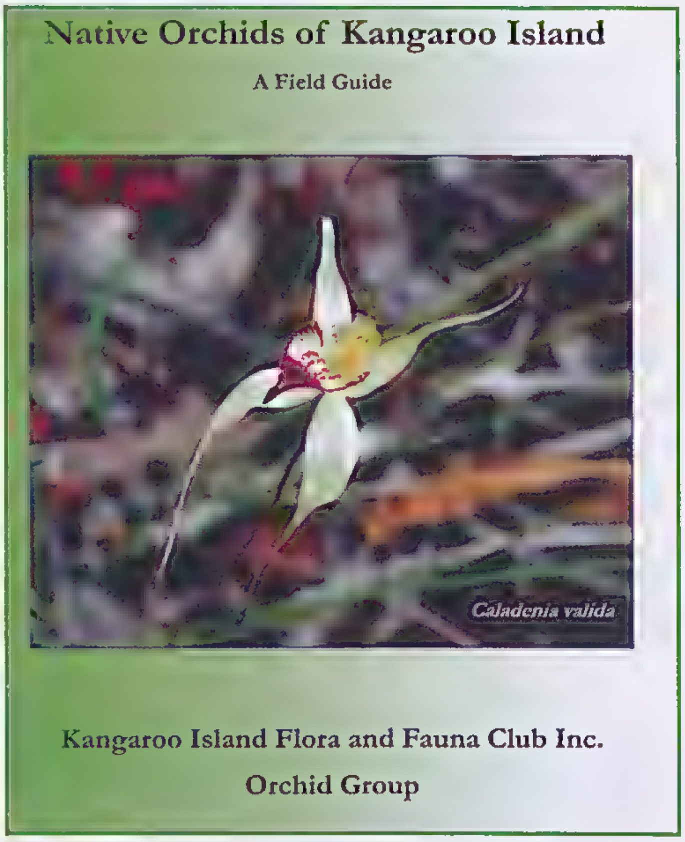
Peter B. Adams

The Kangaroo Island Flora and Fauna Club Inc. Orchid Group began as a literary group (1952-63), then recommenced in June 1982 as a field group dedicated to natural history and conservation. One result is the production of a field guide to all 68 orchid species seen in recent years. A further 21 species which appear on lists have not been seen for many years, and although some may have been renamed, or are in very small numbers and not observed for many years, it is likely that others are no longer present. There has been extensive clearing and destruction of habitat, and concerns that wide roadside verges are now subject to significant disturbance.

This 154 page book is spiral bound and soft covered. It is small enough to fit in a backpack or large pocket. Species are as identified by group members, with no assistance from staff of herbaria. The format is excellent - two pages per species. The first page for each species has a photograph of the species and records flowering time, leaf, inflorescence, soil type, frequency, habitat and conservation status. The opposite page has 3–4 photographs illustrating habitat, close up views of buds, seed capsules, flower variation and other features of interest. There is a map, a glossary of terms, and an explanation of major soil types. There is a guide to monthly flowering, and tips on how to find orchids and survive hazards including insect attack, sunburn and snakes.

There is an interesting collection of images where the group would like assistance with identification. The production is attractive with *Caladenia* and *Pheladenia* on the covers, and photos and descriptions that allow easy identification in the field, or at home in research or writing (see *The Orchadian* Vol. 18:7 p.324 for a visitor's account of orchid species). It will be useful for orchid enthusiasts, bushwalkers, students and people writing about terrestrial orchids.

If there is a revision, an addition to the Introduction of some basic information about Kangaroo Island would be useful, for example area, vegetation types, climate and land formation details. The last sentence of Fertilizing and Seeding of Native Orchids requires amendment, as self pollination produces seedlings of different genetic composition, not 'clones of the parent plant'. For the individual entries under the heading Numbers (frequency), some numerical values indicating the range or maximum numbers of plants per square metre would be useful.



Native Orchids of Kangaroo Island

A Field Guide

Kangaroo Island Flora and Fauna Club Inc.

Orchid Group

These items do not detract from the value of the book for identification and appreciation of Kangaroo Island orchids, a rich resource that the group is helping to conserve, and which is highlighted in this excellent publication.

It is available from the Kangaroo Island Flora and Fauna Club Inc. at PO Box 613, Kingscote South Australia 5223 (enquiries can be addressed to SecretaryKIF&F@gmail), or from the Australian Orchid Foundation at australianorchidfoundation.org.au, where the cost is $25 plus postage.

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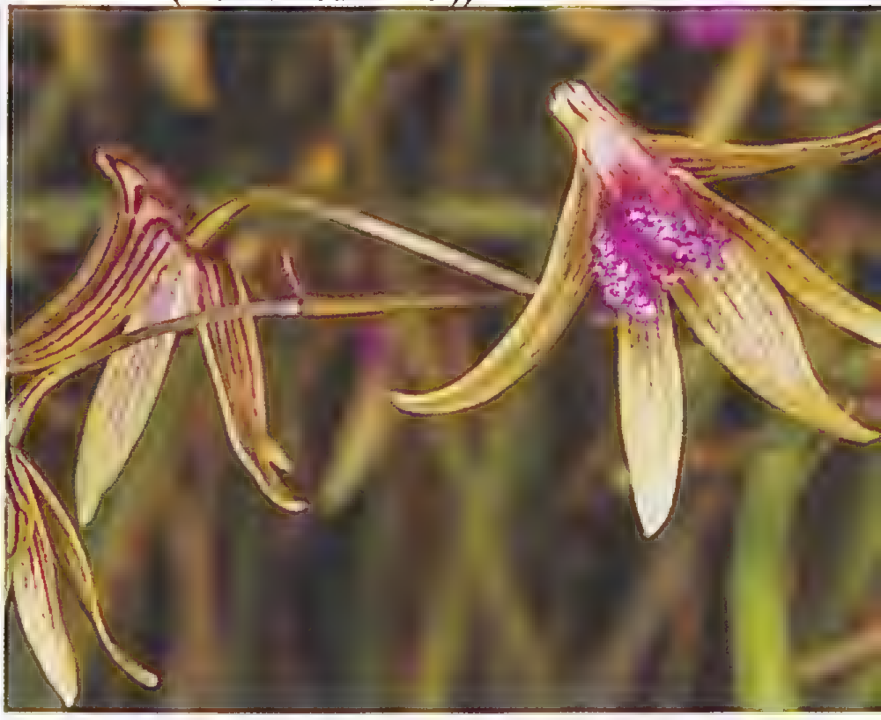
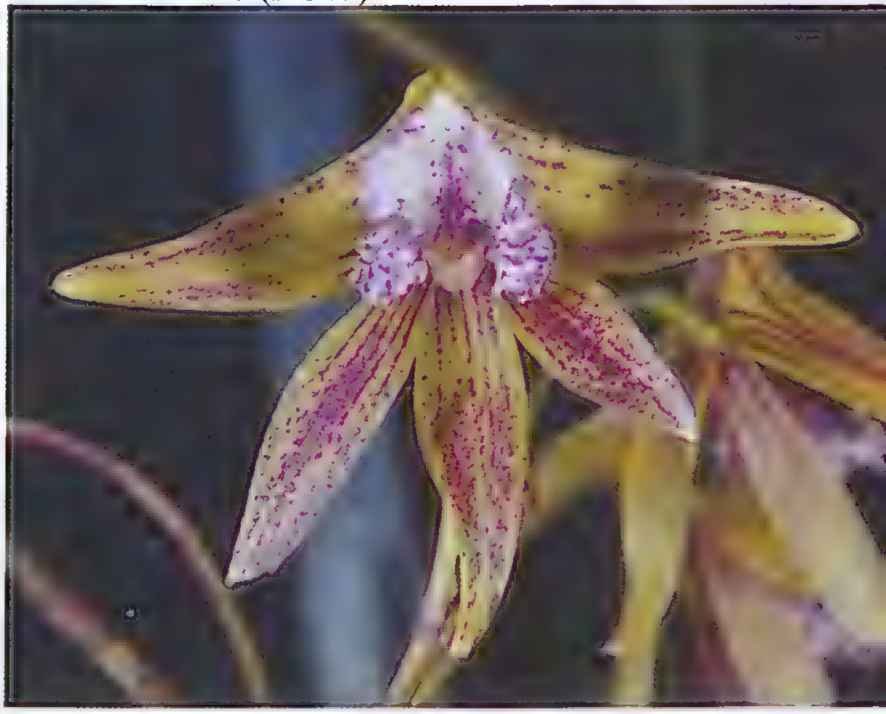
#291 *Dendrobium* Tweetas 'Violet Lip' ACC/ANOS 2017 (Combined Panel))

Points	80.8
Owner	DUNO & Elmore Orchids
Date & event	2 September 2017 Kempsey Speciosum Spec.
Photos by	Bill Dobson
#flowers/inflorescences	255 / 85
Measurements(mm):	
flower	35 across 26.5 vertical
petal	23L 3.5W
sepal	21L 4W
dorsal	24L 6W
labellum	14L 8W
inflorescence length	52
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



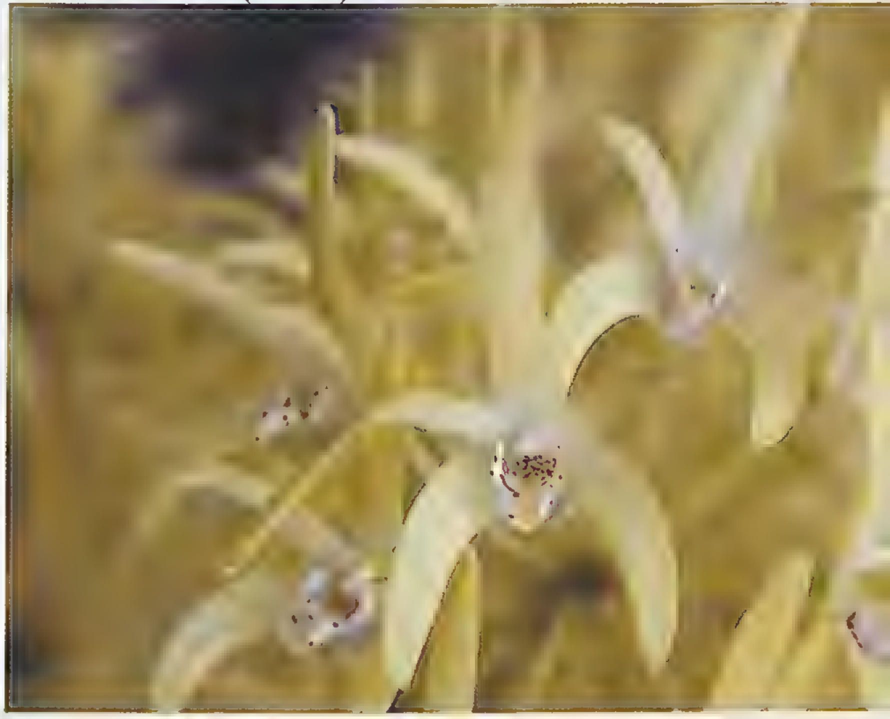
#292 *Dendrobium* Australian Ginger 'Wow' HCC/ANOS 2017 (NSW)

Points	78.6
Owner	DUNO & Elmore Orchids
Date & event	6 September 2017 -
Photos by	Jody Cutajar
#flowers/inflorescences	140 & 7 buds / 56
Measurements(mm):	
flower	29 across 22 vertical
petal	12L 4W
sepal	11.5L 6W
dorsal	10L 4W
labellum	9L 8W
inflorescence length	30
Detailed avge points:	
shape(25)	19.2
colour(20)	16.9
size(15)	11.7
substance/texture(10)	7.6
floriferousness(15)	11.7
habit/attractive(15)	11.6



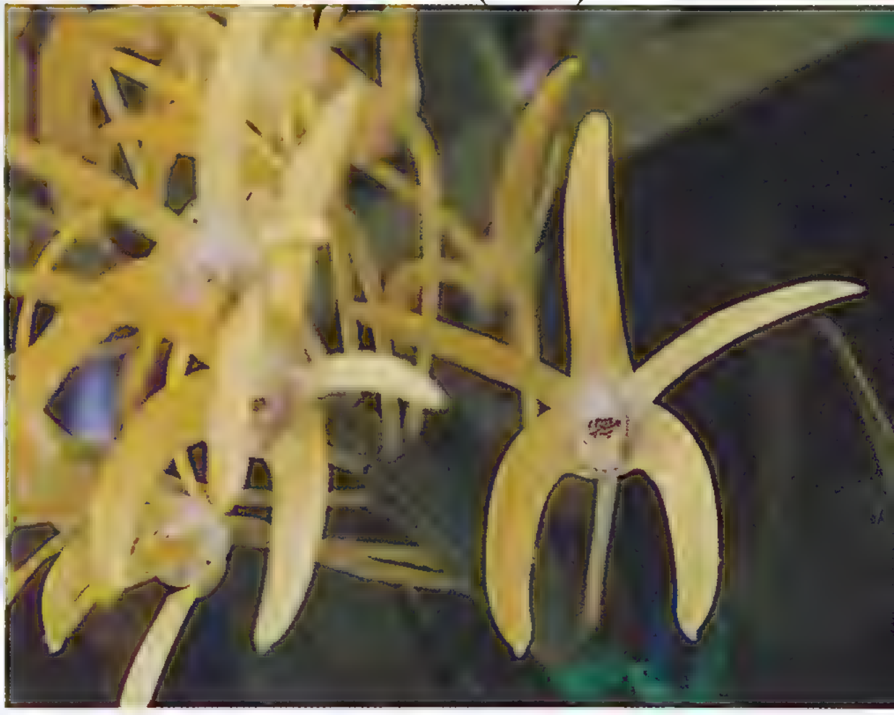
#293 *Dendrobium speciosum* 'Fearless Fred' AM/ANOS 2017 (NSW)

Points	80.0
Owner	Fred Fear
Date & event	6 September 2017 -
Photos by	Melissa Young
#flowers/inflorescences	252 / 4
Measurements(mm):	
flower	20 across 40 vertical
petal	16L 4W
sepal	11L 7W
dorsal	18L 6W
labellum	10L 5W
inflorescence length	355
Detailed avge points:	
shape(25)	20.0
colour(20)	15.5
size(15)	11.8
substance/texture(10)	8.0
floriferousness(15)	12.3
habit/attractive(15)	12.4



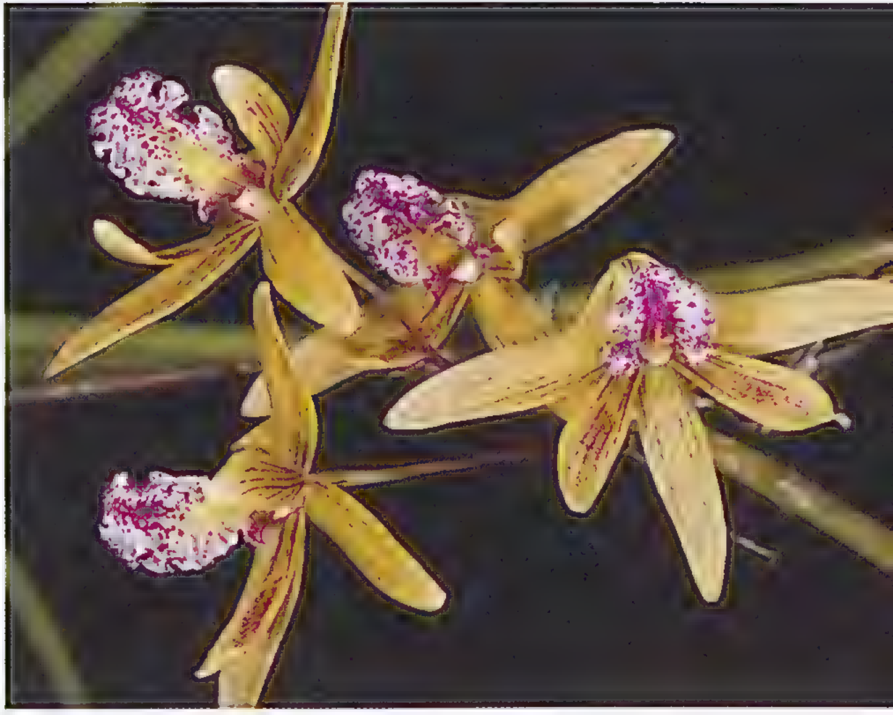
#294 *Dendrobium speciosum* var. *grandiflorum* 'Bill's Gold' AM/ANOS 2017 (NSW)

Points	81.0
Owner	Fred Fear
Date & event	6 September 2017 -
Photos by	Melissa Young
#flowers/inflorescences	562 / 6
Measurements(mm):	
flower	53 across 58 vertical
petal	24L 4W
sepal	14L 7W
dorsal	22L 6W
labellum	8 L 6W
inflorescence length	442
Detailed avge points:	
shape(25)	20.5
colour(20)	17.1
size(15)	11.6
substance/texture(10)	8.1
floriferousness(15)	11.9
habit/attractive(15)	11.8



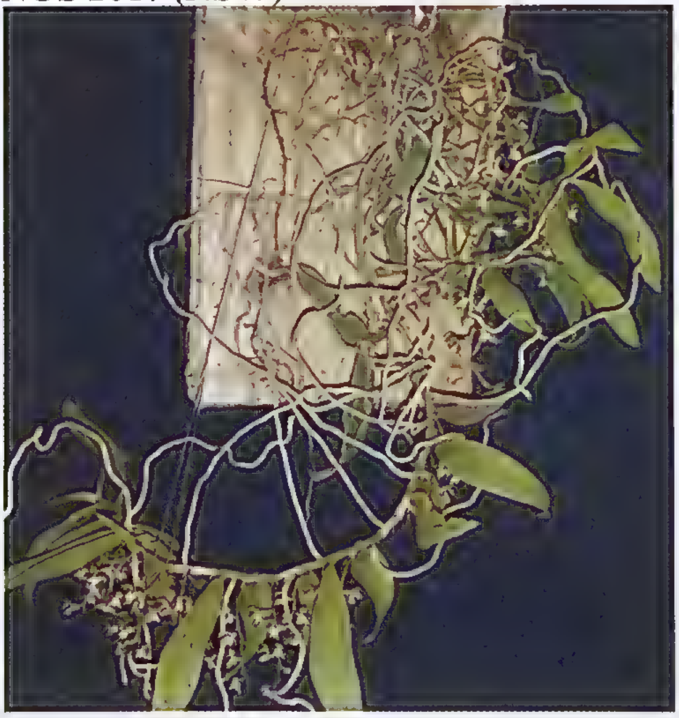
#295 *Dendrobium* Australian Ginger 'Denistone Fairy Dancer' HCC/ANOS 2017 (NSW)

Points	79.5
Owner	David Hemmings
Date & event	10 September 2017 Warringah Spring Show
Photos by	Bill Dobson
#flowers/inflorescences	176 & 2 buds / 63
Measurements(mm):	
flower	40 across 25 vertical
petal	20L 5W
sepal	26L 6W
dorsal	21L 6W
labellum	14L 9W
inflorescence length	60
Detailed avge points:	
shape(25)	19.7
colour(20)	15.8
size(15)	12.3
substance/texture(10)	7.7
floriferousness(15)	11.8
habit/attractive(15)	11.3



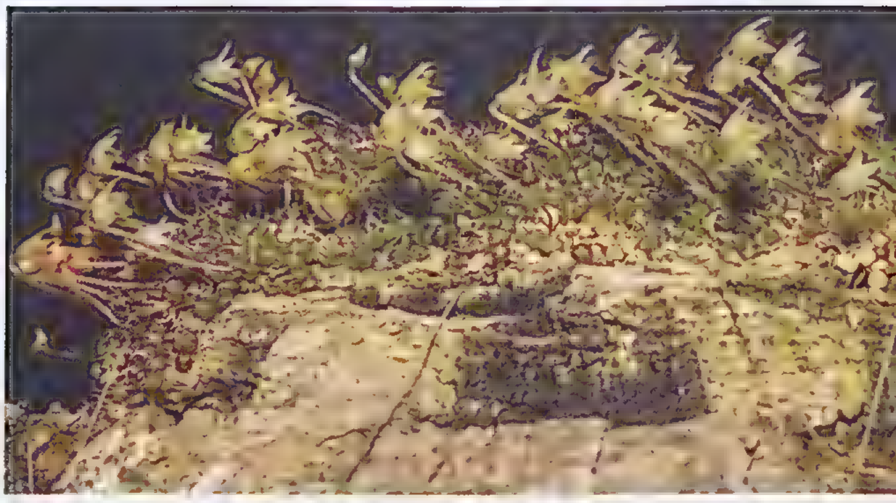
#296 *Plectorrhiza tridentata* 'Bundacol' ACC/ANOS 2017 (NSW)

Points	82.0
Owner	Greg Steenbeeke
Date & event	23 September 2017 -
Photos by	Bill Dobson
#flowers/inflorescences	88 / 21
Measurements(mm):	
flower	6.6 across 7.5 vertical
petal	5.5L 1.4W
sepal	4.7L 1.6W
dorsal	4.6L 2.5W
labellum	4.4L 4.5W
inflorescence length	40
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



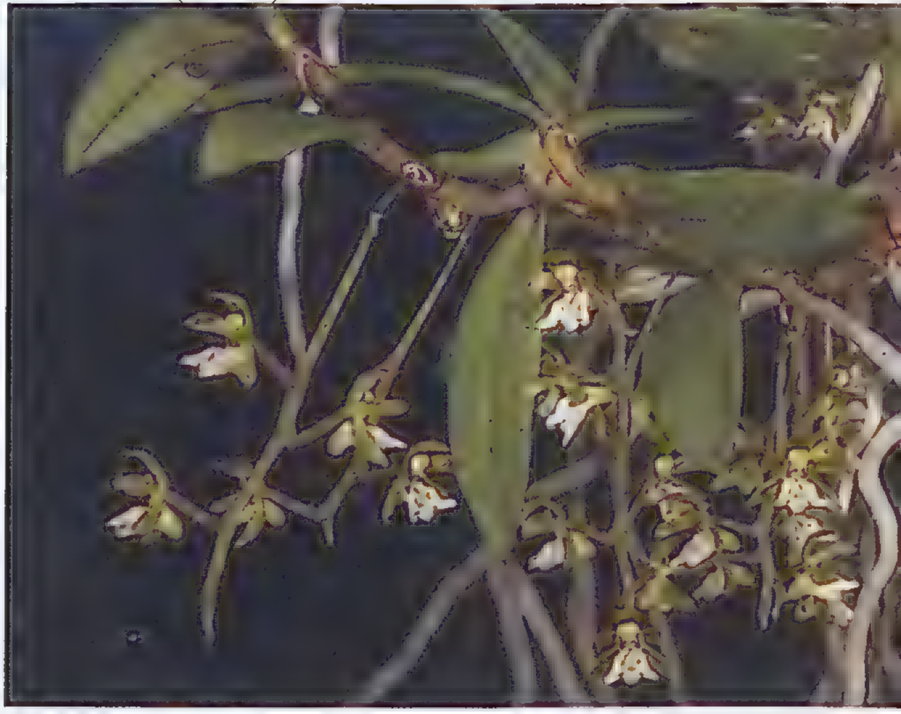
#297-298 *Bulbopyllum globuliforme* 'Little Beauty' ACC-ABE/ANOS 2017 (NSW)

Points	82.2
Owner	Gerry Walsh
Date & event	20 October 2017 -
Photos by	Bill Dobson
#flowers/inflorescences	71 & 15 buds / 86
Measurements(mm):	
flower	5 across 3.6 vertical
petal	3.1L 10W
sepal	3.6L 13W
dorsal	4L 12W
labellum	2.8L 12W
inflorescence length	11.5
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



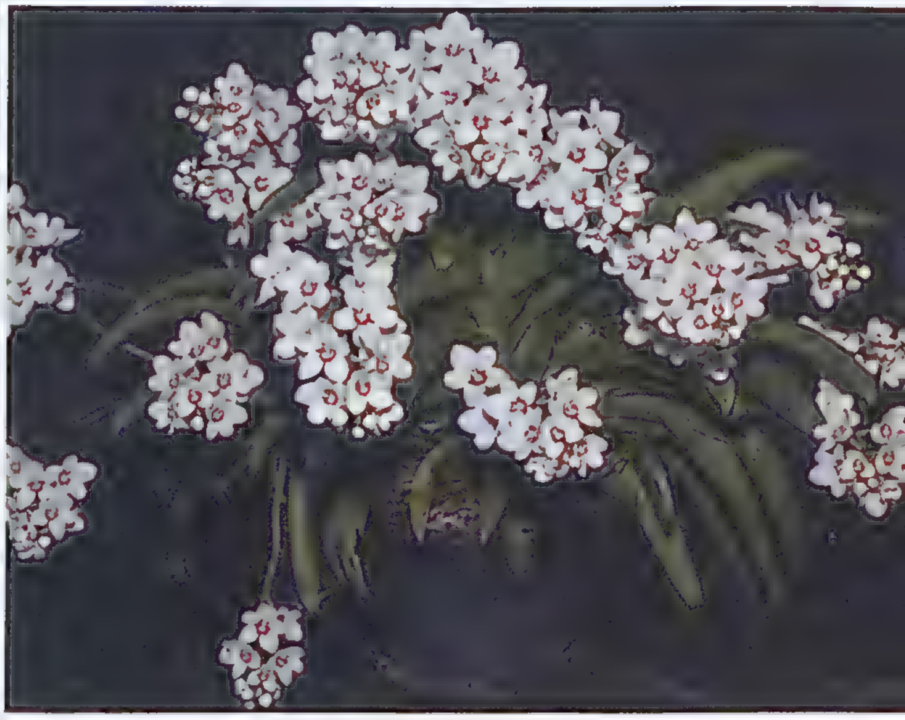
#299 *Plectorrhiza tridentata* 'Lynwood' ACC/ANOS 2017 (NSW)

Points	84.8
Owner	Henk van den Berg
Date & event	20 October 2017 -
Photos by	Lorraine & Bill Dobson
#flowers/inflorescences	198 / 49
Measurements(mm):	
flower	7.7 across 7.7 vertical
petal	3.7L 1.9W
sepal	4.8L 2W
dorsal	4.8L 3W
labellum	6.4L 4.8W
inflorescence length	35
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



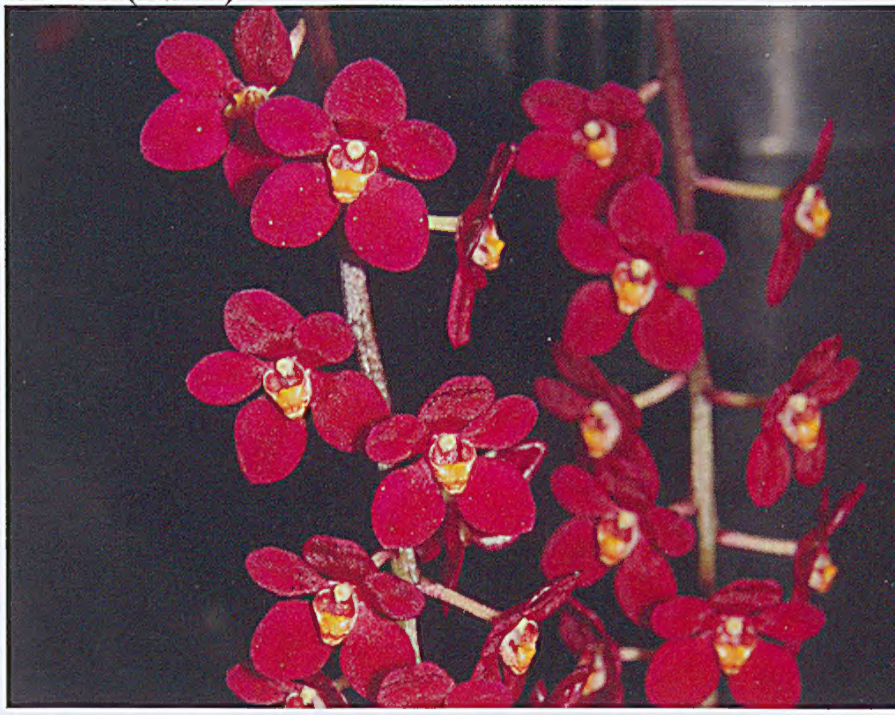
#300 *Sarcochilus hartmannii* 'Sylvan Sun' ACC/ANOS 2017 (NSW)

Points	82.9
Owner	Clover & Bill Bradley
Date & event	20 October 2017 -
Photos by	Bill Dobson
#flowers/inflorescences	192 & 28 buds / 23
Measurements(mm):	
flower	23.3 across 23.2 vertical
petal	12.1L 8W
sepal	14.2L 9.6W
dorsal	12L 5.2W
labellum	5.2L 5W
inflorescence length	210
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



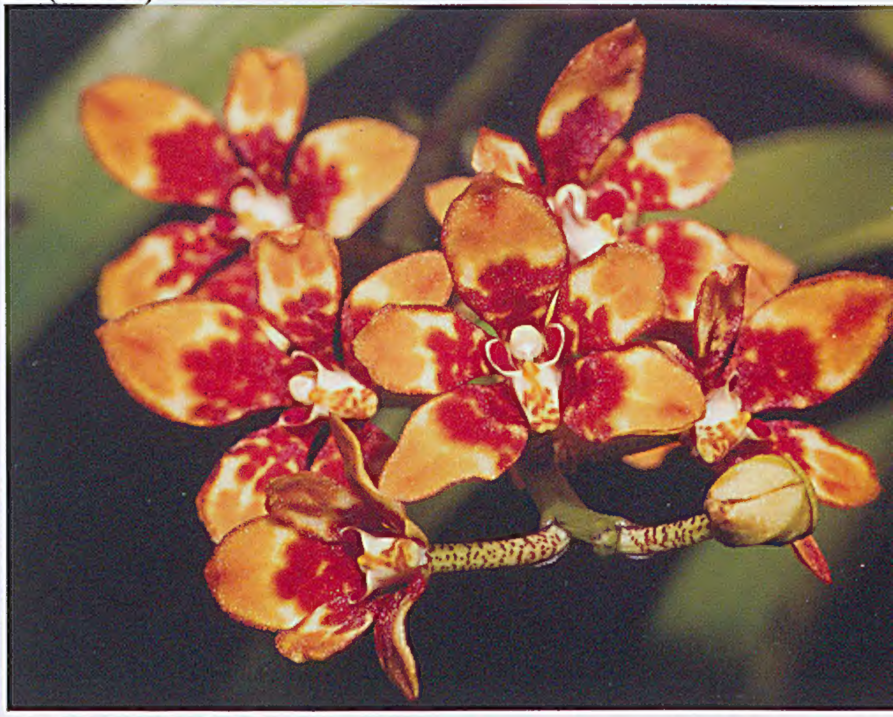
#301 *Sarcochilus Magic* 'Belgarath' HCC/ANOS 2017 (NSW)

Points	76.4
Owner	Lloyd Edwards
Date & event	21 October 2017 -
Photos by	Phil Radford
#flowers/inflorescences	218 / 19
Measurements(mm):	
flower	26 across 28 vertical
petal	12L 8W
sepal	13L 10W
dorsal	13L 11.5W
labellum	6.5L 6W
inflorescence length	216
Detailed avge points:	
shape(25)	19.0
colour(20)	16.7
size(15)	12.1
substance/texture(10)	7.4
floriferousness(15)	10.8
habit/attractive(15)	10.4



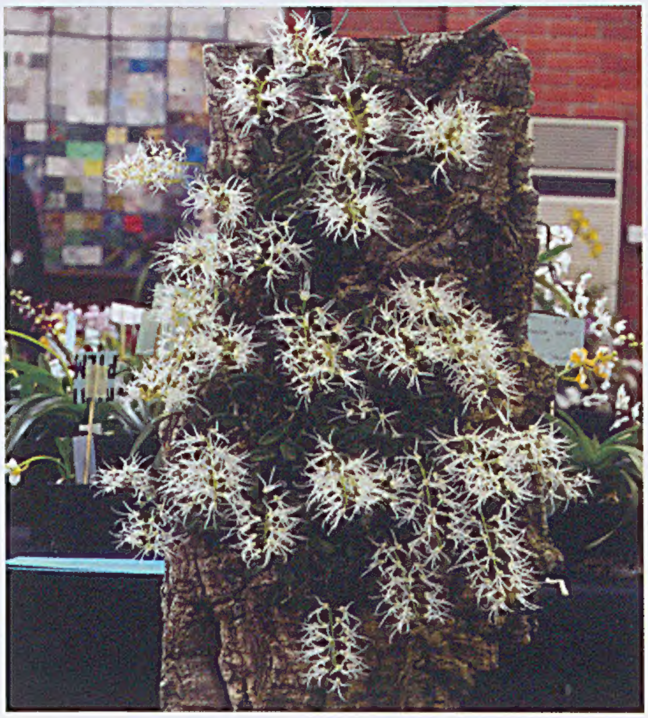
#302 *Plectochilus* Jester 'Sunset' AD/ANOS 2017 (NSW)

Points	not applicable
Owner	David Butler
Date & event	21 October 2017 -
Photos by	Bill Dobson
#flowers/inflorescences	26 & 3 buds / 3
Measurements(mm):	
flower	21 across 20 vertical
petal	10L 7W
sepal	12L 7W
dorsal	13L 8W
labellum	7L 5W
inflorescence length	180
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



#303 *Dendrobium linguiforme* 'Remlap' ACC/ANOS 2017 (VIC)

Points	77.6
Owner	Lorraine Palmer
Date & event	3 November 2017 ANOS Geelong Show
Photos by	David Adams
#flowers/inflorescences	924 / 44
Measurements(mm):	
flower	13 across 19 vertical
petal	15L 1.5W
sepal	15L 2W
dorsal	14L 2W
labellum	4L 2W
inflorescence length	92
Detailed avge points:	
shape(25)	
colour(20)	
size(15)	
substance/texture(10)	
floriferousness(15)	
habit/attractive(15)	



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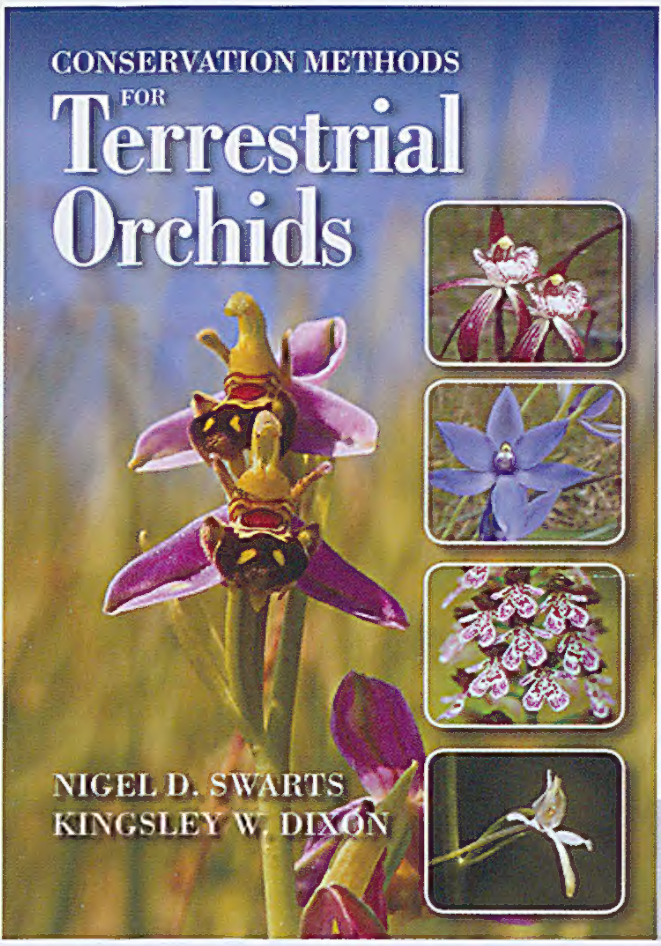

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Discount Price for ANOS members
$900 per person.
Tour 2 Thursday 25 to Sunday 28 October
Tour 3 Thursday 1 to Sunday 2 November

Full details and bookings

Geoff Curry.

Mob 0407636014

www.ecotourstasmania.com.au

Royal Botanic Gardens Victoria
RBG00013040

Shows and Events

Tinonee Nursery Open Day
Workshops on Saturday14th July 2018, Show on Sunday15th. 768 Tinonee Road, Tinonee 2430. Sunday 9 am - 4 pm.

ANOS Central Coast Spring Show
Friday17th - 19th August 2018, Narara Valley Nursery, 2 Manns Road, Narara 2250. 9 am - 4 pm

ANOS Newcastle Spring Show
Weekend of 25th - 26th August 2018, Windale - Gateshead Bowling Club, 2A Lake Street, Windale 2306. Saturday & Sunday 10 am - 4 pm.

ANOS Kabi Group Inc. Show
Weekend of 18th & 19th August 2018, Tom Petrie Room, Strathpine Community Centre, 199 Gympie Road, Strathpine. Parking off Mecklem St. Saturday 9am-5pm, Sunday 9am-2pm.

Dendrobium Speciosum Spectacular & Australasian Species & Hybrid Show Kempsey
Friday 31st August 2018 until Sunday 2nd September, Kempsey Dirt Bike Track, Greenhill via Kempsey. Set up: Friday 31st August (noon to 5pm) & Saturday 8 am to 9 am.

ANOS Illawarra Spring Show
Weekend of 8th - 9th September 2018, Old Courthouse, Cliff Road, Wollongong 2500. Saturday 9 am to 4 pm, Sunday 9 am to 3 pm.

ANOS Sydney Group Spring Show
Saturday 8th September 2018, Eden Gardens (Pandorea Room) 307 Lane Cove Road, North Ryde 2113. 9 am - 4 pm

ANOS Warringah Spring Show
Weekend of 8th - 9th September 2018, Forestville Memorial Hall, Starkey St., Forestville 2087 Saturday 9 am to 4 pm, Sunday 9 am to 3 pm.

The Native Orchid Society of South Australia Show
Weekend of 8th - 9th September 2018, St Bernadettes Primary Scool Hall, Main South Road, St Mary's. 10 am to 4 pm both days.

Native Orchid Society of Toowoomba Show
Friday 21st to Monday 24th September 2018, St John's Lutheran Church Hall, 431 Bridge St, Toowoomba.

ANOS Macarthur Spring Show
Saturday 22nd September 2018, Oran Park Podium, Oran Park 2570. 9 am.

ANOS Victoria Inc. Annual Show
Weekend of 29th - 30th September 2018, Mount Waverley Community Centre, 47 Miller Crescent, Mount Waverley. 9 am to 4 pm both days.

ANOS Melbourne Suburbs Inc. Spring Show
Saturday 6th October 2018, Montrose Town Centre, 935 Mount Dandenong Tourist Rd, Montrose VIC 3765. 10 am – 4 pm (plant sales from 9.30 am).

ANOS Illawarra Sarcochilus Show
Weekend of 13th - 14th October 2018 Old Courthouse, Cliff Road, Wollongong 2500. Saturday 9 am to 4 pm, Sunday 9 am to 3 pm.

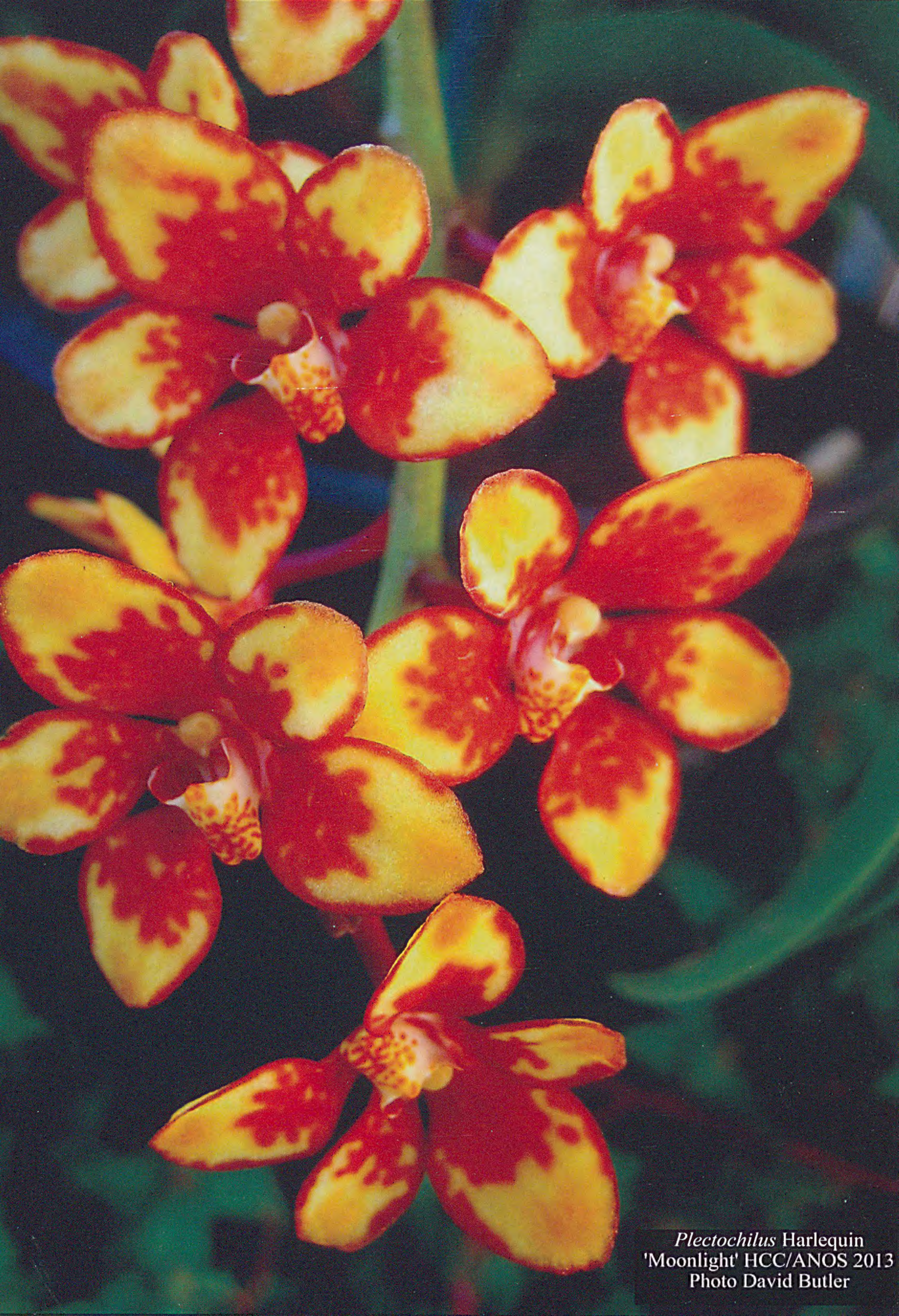
ANOS Central Coast Late Spring Show
Weekend of 13th - 14th October 2018, Narara Valley Nursery, 2 Manns Road, Narara 2250. Saturday & Sunday 9 am - 4 pm.

ANOS Sydney Group Sarcochilus Show
Saturday 20th October 2018 Kellyville Village (shopping centre), 90 Wrights Road, Kellyville. 9 am to 4 pm.

ANOS Newcastle Sarcochilus Show
Weekend of 20th - 21st October 2018, Windale - Gateshead Bowling Club, 2A Lake Street, Windale 2306. Saturday & Sunday 10 am - 4 pm.

ANOS Macarthur Late Spring Show
Saturday 27th October 2018, Intersection Oran Park Drive & Peter Brock Drive, Oran Park. 9 am to 4 pm.

The 9th ANOS Conference and Show
Wednesday 21st to Sunday 26th August 2019 at the Strathpine Community Centre QLD. The event, 'Get Going, Get Growing', will be hosted by the KABI Goup.



Plectochilus Harlequin
'Moonlight' HCC/ANOS 2013
Photo David Butler